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INDEX.

ARTICLES, &c.

Adams, Prof. John, on the Born Teacher, 20.
Ambidextrous Training (H. Macnaughton-Jones), 139.
Antcliffe, H., on Music and Relaxation, 278.
Assistant Mistresses' Association, 330.
Australia, Educational Science in (Prof. Findlay), 539.
Benson, A. C., on the Present Educational Discontent, 75.
Born Teacher, The (Prof. J. Adams), 20.
Brereton, C., on Co-operation between the School and the Employer, 32, 77.
British Association, Education at the (H. Bompas Smith), 466.
Burstall, S. A., on State Grants, 67.
Cahill, Marion, on Petites Françaises, 403.
Careers for Girls:—I, Women's Work, by Janet E. Courtney, 223; II, The Teaching Profession, by Prof. Edith J. Morley, 280; III, Household Science, by Dr. Ida S. Maclean, 338; IV, Journalism, by L. K. Yates, 402; V, Comparison of Opportunity in various Countries, by C. C. Lyon, 427; VI, The Profession of Medicine, by Dr. Jane Walker, 464; VII, Horticulture, by M. C. Rayner, 489.
Chapman, Cecil, on the Children's Commonwealth, 182.
Children's Commonwealth (Cecil Chapman), 182.
Christian Education, Foundations of (Prof. Förster), 497, 532.
Co-education, How far is it desirable? 144.

COLLEGE OF PRECEPTORS:—
General Meetings, 240, 502.
Meetings of Council, 31, 136, 180, 245, 292, 332, 498.
Pass Lists:—
Teachers' Diploma Examination.—Winter, 1913, 127; Summer, 1914, 493.
Certificate Examination.—Christmas, 1913, 99, 131; Midsummer, 1914, 391, 459.
Professional Preliminary Examination.—March, 1914, 179; September, 1914, 460.
Lower Forms Examination.—Christmas, 1913, 109, 133; Midsummer, 1914, 400, 460.
Certificate of Ability to Teach, 180, 332, 496.
Examination of Foreign Teachers, 292.

Compulsory Medical Treatment (C. A. Parker), 227.
Co-operation between the School and the Employer (C. Brereton), 32, 77.

CORRESPONDENCE:—
Compulsory Medical Treatment: F. H., 285.
Elementary Logic: A. Sidgwick, 534.
London "External Degrees," Maintenance of: London Graduate, 23.
National Home-Reading Union, 535.
Plea for Spelling Reform: A. Brodrick, 137.
Private Schools Renamed: Helen Bathgate, 285.
Prize Competition: B. Dumville, 535.
Spelling Reform and Peace: Christina Just, 458.
"Teuton" and "German": C. R. Potter, 458.
Workers' Educational Association: The Reviewer, 284.

Courtney, Janet E., on Women's Work (Careers for Girls), 223.
Current Events, 23, 72, 124, 184, 233, 286, 332, 371, 422, 458, 491, 536.
David, Dr., on the Teaching of English, 180, 335.
Deputation to Mr. Pease, 373.
Education and the War (J. A. Pease), 456.
Education Conference, Next Steps in, 285.
English, The Teaching of (Dr. David), 180, 335; (Hon. Mrs. Franklin), 367.
English Girls in France, 21.
English Prose, Teaching of (S. P. B. Mais), 529.
English Teachers' Conference, 286.
Evening Continuation Schools (D. M. Zimmern), 188.
Exercises for Teachers (Eustace Miles), 455, 496, 529.
External Degree and the London University Commission (Sir P. Magnus), 19.
Findlay, Prof. J. J., on Educational Science in Australia, 539.
Förster, Prof. F. W., on the Foundations of Christian Education, 497, 532.
Franklin, Hon. Mrs., on the Teaching of English, 367.
Further Education Conference at Letchworth, 419.
German, The Appeal of (M. Körner), 231.
Grants, The Basis of, 68.
Greek Play at Bradfield, 331.
Harris, D. R., on Whom shall we Teach? 417.
Head Mistresses' Conference, 325, 328.
Henderson, J., on the Village School, 291.
Holiday in France during the War (W. N. Thomas), 470.
Horticulture (Careers for Girls), 489.
Household Science (Careers for Girls), 338.
Imperial College of Science, 190.
Inspectors, Appointment of, 286.
International Council of Women, 339.
Journalism (Careers for Girls), 402.
Keogh, Sir A., on the Relations of Science and Industry, 190.
Kinematographic Appeal to the Eye in Geography (Prof. L. W. Lyde), 141.
Körner, M., on the Appeal of German, 231.

LEADING ARTICLES:—
A.M.A., The, 171.
Circular 849, 525.
Daily Round, The, 413.
Herefordshire and the Empire, 119.
London University, 273.
Medical Inspection in Secondary Schools, 61.
Organized Freedom, 363.
Schools and the War, 451.
Self-Governing Profession, 485.
Serve the Country! 319.
Talk—and Much Besides, 13.
Women and Marriage, 217.

Letchworth Further Education Conference, 419.
Lighter Side of Pedagogy, 22, 133, 183, 233, 283, 328, 370, 457, 534.
London Mathematical Society, 51, 94, 162, 206, 262, 311, 355, 555.
Lyde, Prof. L. W., on the Kinematographic Appeal to the Eye in Geography, 141.
Lyon, Miss C. C., on Comparison of Opportunity (Careers for Girls), 427.
Maclean, Ida S., on Household Science (Careers for Girls), 338.
MacMunn, N., on Montessorism in Secondary Schools, 467.
Macnaughton-Jones, H., on Ambidextrous Training, 139.
Magnus, Sir P., on the External Degree and the London University Commission, 19.
Mais, S. P. B., on the Teaching of English Prose, 529.
Mansbridge, A., on the Workers' Educational Association, 225.
March, Nora H., on Training the Instructors (Sane Sex Teaching), 425.
Master in Education Degree, 329.
Mathematical Association, Annual Meeting, 70.

MATHEMATICAL QUESTIONS AND SOLUTIONS:—Adams, C. W., 258, 260, 308, 352, 386, 440, 477, 478, 516; Aiyangar, T. K., 161, 439, 477, 516; Aiyar, N. S., 48, 93, 385, 477, 517; Alliston, N., 309, 353, 553; Archibald, R. C., 202, 439; Ashdown, W. J., 260, 309, 353, 553; Bailey, W. N., 93, 159, 160, 161, 258, 261, 308, 309, 353, 354, 384, 385, 385, 386, 439, 442, 477, 478, 517, 518, 555; Barniville, J. J., 93, 160, 161, 440; Beard, W. F., 49, 50, 93, 160, 258, 260, 261, 309, 385, 477, 517, 552, 553; Berwick, W. E. H., 518; Beyens, Prof. I., 260; Biddle, D., 161, 353; Blaikie, J., 260, 308, 386, 517; Border, G. W., 160, 260, 516; Brown, F. G. W., 204, 260; Carmichael, J. G., 516; Child, J. M., 48, 159, 258, 477, 478; Cochez, Prof., 440, 478; Cullen, Rev. J., 205; Cunningham, Lt.-Col. A., 48, 49, 93, 160, 205, 309, 352, 384, 476, 477, 516; Davis, R. F., 48, 93, 159, 160, 161, 204, 205, 258, 352, 353, 385, 386, 442, 517, 553; Dowse, H., 477, Drury, H. D., 46, 160, 353, 384, 385; Freeman, H., 160; Genese, Prof. R. W., 90, 159; Gosset-Tanner, A. S., 308; Greaves, L. B., 258; Hamilton, E. R., 205, 386, 442; Hammond, J., 46, 160, 308; Hardingham, C. H., 384, 552; Heppel, G., 309; Hime, Lt.-Col. H. W. L., 92, 385, 477, 552; Hogg, E. G., 202, 308; 386; Howarth, B., 384; Jones, I. Fitz Roy, 517; Lycett, C. V. L., 159, 258, 261, 353, 354; Macmillan, J., 260, 517; Madden, J. G., 46; McLachlan, N. W., 93; McVicker, C. E., 205; Marks, Constance I., 160, 260; Marr, W. L., 440; Martin, W. J., 439, 440; Matthews, T. H., 159; Mindham, W. F., 517; Morrice, G. G., 258, 385; Muir, T., 204, 308, 386, 518; Murray, Col. J. H. S., 554; Nanson, Prof. E. J., 49, 204, 309, 352, 353; Narayanan, S., 309; Nesbitt, A. M., 48, 50, 92, 161, 204, 205, 308, 352, 385, 440, 478, 552; Neuberg, Prof., 48, 204, 309, 352; Orchard, Prof. L., 90, 160, 258, 353; Phillips, F., 93, 161; Reeves, F. W., 517; Relton, F. E., 205; Riddell, H., 50, 553; Ross, C. M., 46, 48, 352, 353, 386, 440, 442, 478, 518, 554; Sanjána, Prof., 49, 90, 93, 204, 309, 353, 476, 517, 554; Shovelton, S. T., 518; Sommerville, D. M. Y., 92; Srinivasan, Prof. R., 161, 258, 260, 261, 477; Stephenson, P. T., 46, 258, 261, 308, 554; Swaminarayan, Prof. J. C., 46, 202, 260, 440, 517; Sylvester, Prof., 308; Tata, R., 93, 204; Taylor, F. Glanville, 258, 440, 517; Terry, Rev. T. R., 308; Trivedi, T. P., 204, 353, 440, 442, 517, 554; Turton, F. J., 90, 260; Vythynathaswamy, R., 160, 477; Wales, H. R., 309, 385, 552; White, Prof., 354; Wright, C. E., 92, 258; Youngman, C. E., 93, 260, 442, 553, 554.

Maynard, Constance L., on the Progress Women's Education, 142.
Medicine, Profession of (Careers for Girls), 464.
Meetings of Educational Bodies and Resolutions passed at, 69.
Miles, Eustace, on Exercises for Teachers and Others, 455, 496, 529.
Modern Language Association, Meeting of, 71.
Montessori Conference (H. Bompas Smith), 418.
Montessorism in Secondary Schools (N. MacMunn), 467.
Morley, Edith J., on the Teaching Profession (Careers for Girls), 280.
Music and Relaxation (H. Antcliffe), 278.
Notes, 14, 62, 120, 172, 218, 274, 320, 364, 414, 452, 486, 526.
Ogley, D. H., on School Lighting, 84.
Padel, C. F. C., on What shall we Teach? 337.
Parker, C. A., on Compulsory Medical Treatment, 227.
Pease, J. A., on Education and the War, 456.
Pease, J. A., on Why did we go to War? 495.
Petites Françaises (Marion Cahill), 403, 420.
Physical, Mental, and Moral Development of Children (M. C. Scott), 282.
Poetry, 134, 183, 232, 329, 370, 457, 536.
Present Educational Discontent (A. C. Benson), 75.
Pritchard, Dr. Eric, on Sane Sex Teaching, 187; in Boys' Schools, 289.
Private Schools, Position of, in a National System of Education, 79.
Prize Competitions, 136, 184, 234, 287, 329, 371, 422, 462, 499, 535.
Rayner, M. C., on Horticulture (Career for Girls), 489.
Registration (Miss Robertson), 326.
Rippmann, W., on a Standard for the King's English, 430.
Robertson, Miss, on Registration, 326.
Romance as a Factor in Development (Mrs. Scott), 134.
Sadler, M. E., on the Teachers' Registration Movement, 30.
Saleeby, Dr. C. W., on Education for Parenthood (Sane Sex Teaching), 501.
Saleeby, Dr. C. W., on the Purpose of Sex (Sane Sex Teaching), 463.
Sane Sex Teaching:—I, Introductory, by Dr. Eric Pritchard, 187; II, In the Nursery, by Dr. Helen Webb, 237; III, In Boys' Schools, by Dr. Eric Pritchard, 289; IV, In Girls' Schools, by Dr. Helen Webb, 375; V, Training the Instructors, by Nora H. March, 425; VI, The Purpose of Sex, by Dr. C. W. Saleeby, 463; VII, Education for Parenthood, by Dr. C. W. Saleeby, 501.
School Lighting (D. H. Ogley), 84.
Science and Industry, Relations of (Sir A. Keogh), 190.
Scott, M. C., on the Physical, Mental, and Moral Development of Children, 282.
Scott, Mrs., on Romance as a Factor in Development, 134.
Smith, H. Bompas, on Education at the British Association, 466.
Smith, H. Bompas, on the Montessori Conference, 418.
Smith, H. Bompas, on the Spirit of Adventure, 27.
Spirit of Adventure (H. Bompas Smith), 27.
Standard for the King's English (W. Rippmann), 430.
State Grants from the Woman Teacher's Point of View (S. A. Burstall), 67.
Summary of the Month, 17, 65, 123, 176, 222, 277, 323, 366, 416, 454, 488, 528.
Sure Foundation, 239.
Teachers of English Conference, 421.
Teachers' Registration Movement, Memories of (M. E. Sadler), 30.
Teaching Profession (Careers for Girls), 280.
Thomas, W. N., on a Holiday in France during the War, 470.
Two Sketches, 29.
Village School, The (J. Henderson), 291.
Walker, Dr. Jane, on the Profession of Medicine (Careers for Girls), 464.
Webb, Dr. Helen, on Sane Sex Teaching—In the Nursery, 237; In Girls' Schools, 375.
What shall we Teach? (C. F. C. Padel), 337.
Whom shall we Teach? (D. R. Harris), 419.
Why did we go to War? (Pease), 495.
Women's Education, Progress of (C. L. Maynard), 142.
Women's Work (Careers for Girls), 223.
Workers' Educational Association, 177, 225.
Wormell, Richard, 66.
Yates, L. K., on Journalism (Careers for Girls), 402.
Zimmern, W. M., on Evening Continua-Schools, 188.

REVIEWS, NOTICES, &c.

Reviews.

Alington's Schoolmaster's Apology, 511.
Angell's International Polity, 297.
Année Pédagogique, 1912, 148.
Ashbee's Hamptonshire Experiment, 192.
Ashford's Sense Plays, 544.
Ballantyne's Expectant Motherhood, 432.
Bezard's Comment apprendre le Latin, 431.
Blackie's Library of Pedagogics, 471.
Boulenger's Animal Life by the Seashore, 380.
Bowley's Pure Mathematics, 196.
Boyd's From Locke to Montessori, 193.
Branford's Interpretations of Forecasts, 342.
Brett's Government of Man, 432.
Broad's Perception, Physics and Reality, 512.
Cambridge English Literature, Vol. 10, 36.
Cambridge Medieval History, Vol. 2, 196.
Cannan's Wealth, 380.
Carmichael's Theory of Relativity, 196.
Carson's Mathematical Education, 346.
Cavour (Orsi), 296.
Chesser's From Girlhood to Womanhood, 146.
Chisholm's Medical Inspection of Girls, 298.
Cholmeley's Secondary Education, 34.
Cotterill's Ancient Greece, 151.
Culverwell's Montessori Principles, 147.
Darroch's Education and the New Utilitarianism, 247.
Davis's Young Teacher's Primer, 471.
Dresslar's School Hygiene, 86.
Egerton's Future of Education, 377.
Enriques's Problems of Science, 344.
Euripides and his Age (Murray), 87.
Findlay and Steel's Educative Toys, 471.
Finkelstein's Marking System, 149.
Fisher's The Montessori Manual, 472.
Galloway's Biology of Sex, 379.
Geography Teaching, Suggestions for, 472.
Grant's English Education and Dr. Montessori, 149.
Greek, Teaching of, at the Perse School, 543.
Heath's Elementary Statics, 150.
History in Schools, 379.
Hobson's Squaring the Circle, 296.
Holmes's In Defence of What Might Be, 378.
Jacks's All Men are Ghosts, 35.
Jackson's Education in England, 86.
Jones's Ambidexterity, 298.
Jones's Nature of Taxation, 473.
Jones and Wykes's Arithmetic, 150.
Key's Education of the Child, 346.
Key's Renaissance of Motherhood, 545.
Kinnear's Principles of Property, 194.
Laisant's Thresholds of Science—Mathematics, 150.
Lamb's Clio Enthroned, 510.
Leathes's What is Education? 35.
Lyde's Continent of Europe, 37.
Lyttelton's Corner-stone of Education, 246.
Lytton's Prisons and Prisoners, 249.
MacMunn's Path to Freedom, 293.
McMurry's Handbook of Practice for Teachers, 544.
Manatt's Aegean Ways, 35.
Mathematicians' Congress Proceedings, 36.
Matthay's Musical Interpretation, 511.
Mind at Work, 297.
Montessori's Own Handbook, 247.
Murray's Froebel and Modern Psychology, 542.
Nesbit's Wings and the Child, 86.
Neuman's Chignett Street, 292.
Overseas, 195, 248, 293, 378, 512, 545.
Pigou's Unemployment, 194.
Pitt's Purpose of Education, 149.
Prideaux's Elementary Education, 471.
Problems of Village Life, 194.
Punnett's Groundwork of Arithmetic, 298.
Saleeby's Progress of Eugenics, 346.
School and Life, 293.
Scripture Teaching in Secondary Schools, 342.
Shaw's Misalliance, &c., 340.
Sidgwick's Elementary Logic, 508.
Smith's Three Gifts of Life, 146.
Smyth's Composition of the Iliad, 249.
Sophocles in English Verse (Way), Vol. 2, 295.
Tawney's Studies in the Minimum Wage, 510.
Tillyard's University Reform, 432
Valentine's Psychology and Education, 544.
Varisco's Great Problems (Lodge), 511.
Vivès on Education (Watson), 147.
Webb's Life and its Beginnings, 146.
West's Education and Psychology, 341.
Wheeler's French Revolution, 250.
Whitehouse's National System of Education, 246.
Women Workers in Professions, 294.
Wood's Children's Play, 148.
Wood's Royal Society of Arts, 344.

General Notices.

Adams's French Revolution, 250.
A. L. Geography Notebooks, 304.
Allen's Atlas of Commercial Geography, 40.
Allen's Industrial Studies: Europe, 348.
Andersen's Fairy Tales (Weiss), 254.
Andrews's Textbook of Geography, 40.
Antcliffe's Living Music, 89.
Appleton and Jones's Pons Tironum, 474.
Appleton and Jones's Puer Romanus, 152.
Armstrong's Stamp Collecting, 201.
As Good as the Zoo, 549.
Atlas Geographies, 88, 209.
Audoux's Marie Claire à Villevieille (Philip), 198.
Bacon's New School and College Atlas, 434.
Badley's Co-education in Practice, 300.
Bagley and Goode's Elocution Book, 198.
Baker's Guide to Historical Fiction, 434.
Baker and Bourne's Shorter Algebra, 154.
Ballantyne's Expectant Motherhood, 252.
Balleine's Religious Instruction, 200.
Balzac's Curé de Village (Galpin), 381.
Banister's Textbook of Music, 200.
Barnard and Child's Exercises in Algebra, 200.
Barnton's The Making of Viola, 514.
Bassett's Elements of Chemistry, 437.
Batchelder's Teaching of English, Part 1, 300.
Bausor's Chemical Calculations, 436; Advanced Course, 437.
Beaumarchais's Le Barbier de Séville (Osgood), 197.
Bell's English History Source Books, 154.
Belloc's Poitiers, 88.
Bentley's Europe and North America, 40.
Bergen and Caldwell's Botany, 304.
Berry's Exercises in Visual Arithmetic, 154.
Best and Ogden's Continuation School, 197.
Bickmore's Industries for the Feeble Minded, 349.
Blackburn's Modelling for Infants, 201.
Blackie's Children's Annual, 549.
Blackie's Christmas Books, 549.
Blackiston's The Bible of To-day, 436.
Blue Book of Naval Battles, 548.
Bob-tail Puppy Book, 548.
Bohn's Popular Library, 381.
Bone's Service of the Hand, 37.
Borrow's Wanderings in Spain (Cavenagh). 302.
Boy Castaways, 549.
Boy's Own Railway Book, 549.
Brailsford's Shelley and Godwin, 38.
Brewer's School Gardening, 349.
Brewster's Writing of English, 38.
Britain and her Neighbours, Books 5 and 6, 346.
British Boy's Annual, 549.
British Girl's Annual, 549.
Brown Book for Boys, 548.
Brucker's Botany. 42.
Brunton's Metal Modelling, 201.
Bulley's Ancient and Medieval Art, 475.
Bunten's Song of the Shepherd, 514.
Bunting and Collins's British Geography, 40.
Burgess's Health, 350.
Burniston's Common-sense Algebra, 200.
Burrell's English Literature, 348.
Caesar's Gallic War, Book 6 (Penn), 152.
Caesar's Gallic War, Books 1 to 7 (Holmes), 474.
Callender's Story of the Victory, 549.
Cambridge Bible—Jeremiah and Lamentations, 513.
Cambridge Bible for Schools—Judges and Ruth, 514.
Cambridge County Geographies—Northumberland, 200; Merionethshire, 200.
Cambridge Poets, 1900–1913 (Tillyard), 87.
Capstick's Sound, 349.
Carson and Smith's Algebra, Part 1, 474.
Carter's Chants Français, 304.
Carter's Genera of British Plants, 350.
Cassell's Christmas Books, 549.
Cassell's Geographical Section, Books 3 and 4, 348.
Century Bible—Daniel, 514.
Ceppi's French Lessons, Senior Course, 198.
Ceppi and Raymont's Sentence Expansion, 380.
Chatterton's Romance of Piracy, 548.
Chaytor and Renault's French Translation, 432.
Clarke's Organic Chemistry, 437.
Clarke and Murray's German Grammar, 252.
Classen's German Grammar, 254.
Claxton's Mastery of the Air, 549.
Codling's Public Speaker's Course, 348.
Cohu's Vital Problems of Religion, 436.
Cole's Growth of Europe, 434.
Coley's Wild Flower Preservation, 42.
Colles's Growth of Music, Part 2, 201.
Collitz's German Classical Selections, 547.
Cooke's Our British Wild Flowers, Our British Animals, Our British Trees, 549.
Cooke's Voyage on a Liner, 548.
Cooper's The Man of Egypt, 154.
Corke and Nuttall's Wild Flowers, 350.
Cox's Practical Speech Culture, 348.
Cracknell's Junior Geometry, 300.
Cracknell's School Algebra, 154.
Dalcroze's Rhythmic Dances, 514.
Daniels and Cotton's Le Révolution, 349.
Daniels and Travers's Poèmes et Chants, 152.
Dandet's Contes Choisis (Adair), 349.
Daughter in Possession, 549.
Dauntless Three, 549.
David's German Composition, 254.
Davidson's Told in Dicky-bird Land, 350.
Davies's Dramatized Stories from History, 475.
Davis's European History, 198.
Davison's Problem Papers, 156.
Deakin's School Geometry, Part 2, 40.
Dennis's Preparatory Algebra, 300.
Dent's Collection Gallia, 197.
Dent's Tales for Children, 548.
Delbrück's Numbers in History, 475.
Delmer's English Literature, 38.
Déroulède Feuilles de Route (Pardoe), 152.
Dicks's Geography of Europe, 40.
Dodd's Early English Social History, 300.
Doyle's (Conan) Lost World, 548.
Dragon Osmund, 549.
Duckitt and Wragg's English Letters, 38.
Dumville's Child Mind, 37.
Duncan's Mechanics for Engineers, 436.
Duncan's Our British Birds, 549.
Duncan's Wonders of Insect Life, 252.
Dying, The Art of, 349.
Dyson's German Conversation, 254.
Ecclesiasticus (Oesterley), 513.
Edgar the Ready, 549.
Educational Associations Conference Report, 197.
Edwards's Salamis, 197.
Elliot's Wonders of Savage Life, 548.
Emancipation, 549.
English History in Contemporary Poetry, 88, 153, 198, 214.
Euripides' Iphigenia in Tauris (Morton), 252.
Evans's Précis Writing, 302.
Farmer's Plant Life, 89.
Fewkes's Systematic Arithmetics, 154.
Field's British Arms Book, 549.
First Mate, 549.
Fleming's Common-Sense Knitting, 201.
Fraser's First History of England, 346.
Fraser's Victor et Victorine, 349.
Freeman and Jobling's Examples in Physics, 156.
Gentleman-at-Arms, 548.
Gibbs's Exercises in English History, 88.
Gibson's Great Ball on which we Live, 548.
Gibson's Mental Arithmetic, 200.
Gibson's Our Good Slave Electricity, 548.
Gibson's Wireless Telegraphy, 40.
Gillies and Shepherd's Latin Grammar, 152.
Girls of St. Cyprian's, 549.
Girl's Realm, 549.
Glehn, Chouville, and Wells's Cours Français du Lycée Perse, Première Partie, 304.
Gofton's Talks about Trees, 350.
Goodacre's Experimental Arithmetic, 474.
Graded First Latin Books, Book 2, 152.
Gray's Physical Chemistry, 381.
Greenwood's Health and Physique of School Children, 300.
Gregory's Geology of To-day, 548.
Gretton's The King's Government, 198.
Griffin's Household Arithmetic, 154.
Guillaume's Mechanics, 40.
Gunboat and Gunrunner, 549.
Hall's Modern Weapons of War, 549.
Hall's Threshold of History, 302.
Hall's Treasures of the Earth, 549.
Hambridge's Needlework Diagram Drawing. 42.
Hamilton's Greek and Roman History, 198.
Hannah's Capitals of the Northlands, 250.
Hawthorne's Wonderland (Milford), 548.
Hayes and Collins's Matriculation Latin Course, 152.
Hayter's Exercises on Le Blocus. 349.
Hazlitt, Selections from (Howe), 302.
Heape's Preparation for Marriage, 252,
Heart of the West, 549.
Henderson's Western Europe, 302.
Hensel's Zahlentheorie, 156.
Herbert Strang's Annual, 548.
Hewlett's History of Lancashire, 88.
Hicks's Garment Construction, 349.
Hilditch's Organic Chemistry, 475.
History, 381.
Hitching's Baby Clothing, 514.
Hodgkison's Preliminary Geography, 40.
Holman's School Handwork, Vol. 2, 201.
Homer's Iliad (Blakeney), Vol. 2, 152.
Hope, Brown, and Sherrington's Hygiene, 37.
Horwood's British Plant Life, 350.
Hudson's Representative Passages from English Literature, 200.
Hyrst's Stories of Polar Adventure, 548.
Ian Hardy, Midshipman, 548.
Ingham's Gearing, 514.
Innes's History of England, Vols. 1 and 2, 252.
Isaiah xl–lxvi (Elmslie and Skinner), 436.
Jack Scarlett, 548.
Jeanne d'Arc, Story of (Wilmot-Buxton), 346.
Jeffery's Inorganic Chemistry, 381.
Jennings's Duty to the State, 302.
Johns Hopkins University Circular, No. 3, 547.
Johnston's Atlas Geographies, 436.
Johnston's Land Form Pictures, 434.
Jones's Selected English Speeches, 302.
Judson, the Hero of Burma, 548.
Ker and Cleaver's Heroes of Exploration, 348.
Kermack's Scottish Historical Geography, 88.
Kimpton's Book Ways, 198.
King's College Lectures on Colonial Problems, 154.
Kirkman's Electricity and Magnetism, 156.
Kirkman's Soirées chez les Pascal, 515.
Kittredge and Farley's English Grammar, 38.
Kleist's Prinz Friedrich von Homburg Bridge, 304; (Baker), 546.
Knox's All about Electricity, 549.
Lamb's Essays of Elia (Thompson), 198.
Lay Views by Six Clergy, 436.
Layman's Old Testament, 200.
Lessing's Nathan der Weise (Capen), 546.
Lindsey's Brief Tudor-Stuart List, 198.
Lindsey's Problems in British History, Vol. 3, Part 6, 38.
Little Dramas of History, 346.
Little Stories of Great Lives—Drake, Joan of Arc, 548.
Livy, Book 27 (Campbell), 252.
Logan's School Gardening, 252.
Long's American Literature, 348.
Lowson and Willis's Botany, 304.
McLachlan's Practical Mathematics, 40.
Macmillan's Pocket Classics, 348.
McMunn's Differential Partnership, 546.
McMunn's Upper Thames Country, 40.
Mansion's Fabliaux et Contes, 515.
Marichal's French Essays, 432.
Mark's Unfolding of Personality, 300.
Marriott's English Political Institutions, 88.
Marshall's History of Germany, 87.
Marshall and Schaap's Manual of English, 302.
Martin's First German Reader, 546.
Mason's Reading by the Phonic Method, 300.
Maupassant's Six Contes, 380.
Meadows's English Nation, 302.
Meadows's Source Book of London History, 434.
Mellor's Modern Inorganic Chemistry, 349.
Mill's Commercial Geography (Allen), 434.
Mill's Realm of Nature, 40.
Milne's Higher Algebra, 156.
Milton's Educational Woodwork, 42.
Molière's Bourgeois Gentilhomme (Oliver), 546.
Moncrieff's Heroines of European History, 302.
Morrow's Contours and Maps, 40.
Mort's British Commercial Geography, 200.
Mrs. Strang's Annual, 548.
Munro's Prehistoric Britain, 474.
Nairne's Faith of the Old Testament, 514.
Napoleon, Life of (Rose), 38.
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Nelson's Girl's Annual, 549.
New Era School Atlas, 304.
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Newnham's Child Life in Groupwork, 201.
Nicholls's Scenic Studies of the Bible Background, 436.
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Nunn's New Testament Greek, 252.
Oates's Heroes of Welsh History, 346.
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Ogilvie and Albert's Secondary English, 38.
Ogley's Incandescent Electric Lamps, 304.
On the Field of Waterloo, 549.

Outa Karel's Stories, 548.
Ovid's Elegiac Poems (Pearce), 474.
Ovid's Metamorphoses (Johnson and Firth), 152.
Owen and Boulger's The Country, 515.
Oxford County Histories—Lancashire, 88.
Page's Tour of the World, 434.
Palser's New School Hymnal, 200.
Parrott's Pageant of English Literature, 549.
Parry's Certificate Hygiene, 37.
Paterson and Taylor's Geometry, Vol. 1, 474.
Paton's List of Schools, 475.
Penn's Navy under the Early Stuarts, 154.
Pennell: Hero of the Afghan Frontier, 548.
Piers Plowman Histories, Junior Book 7, 434.
Plaisted's Handwork in Early Education, 349.
Pliny's Letters, Anecdotes from (Lowe), 197.
Praeger's Weeds, 88.
Prescott's Mechanics, 349.
Problems of School Hygiene, 349.
Raven's Extracts from the Chronicles, 198.
Red Book of British Battles, 548.
Reid's Public Administration, 154.
Renault's Junior French Reader, 515.
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Rob Wylie of Jordan's, 549.
Robinson's Lectures on English Song, 514.
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Rodgers's Junior Chemistry, 475.
Rogers's Outlines of Modern History, 198.
Röhl's Geschichte der deutschen Dictung, 381.
Romance of Nature, 252.
Rosegger's Das Holzknechthaus (Goebel), 547.
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Runge's Graphical Methods, 300.
Sage and Fretwell's Building Construction, 350.
Sallust's Catiline (Winbolt), 152.
Salmon's Economic History of England, 38.
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Sanderson's Stories of Great Pioneers, 548.
Sargent's South Africa, 304.
Sayer's Musical Number Games, 89.
Scharlieb's What it means to Marry, 252.
Schofield's Model Drawing, 201.
Scholar's Geography Exercise Books, 304.
Schulze's Politische Bildung in England, 381.
Schweitzer and Simonnot's Méthode, 152.
Scott's Rob Roy (Wheeler), 548.
Scott's Tales of a Grandfather, 2nd Series (Hutchison), 302
Scott's Voyages, 549.
Scott and Jones's Second Latin Course, 300.
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Sertum (Fowler and Parr), Book 1, 302.
Sewell's Principles of Education, 546.
Sharp's Country Dance Book, Part 3, 89.
Shorter Modern Dictionary, 302.
Siepmann and Vernois's French Lessons, 152.
Sloman's Elementary Latin Grammar, 197.
Smart's Projective Geometry, 156.
Smith's Teaching of Arithmetic, 436.
Some Secrets of Nature, 252.
Source Book of English History, Vol. 2, 252.
Spalding's The Nation and its Government, 434.
Sparkes's New Tales of Old Times, 549.
Spiller's Knights' Songs of Love and Duty, 89.
St. Cecilia Part Songs, 514.
St. Luke in Greek (Burnside), 513.
Stalker's How to Read Shakespeare, 154.
Stanley's Practical Science, 475.
Stanley's Science for Engineers, 40.
Stenhouse's Nature Study, 252.
Stephenson's How to Breathe, 348.
Stephenson's Songs for the Schoolroom, 89.
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Story of the Plants, 548.
Story-book Girls, 548.
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Swann's Primer of English Citizenship, 88.
Tacitus's Agricola (Winbolt), 152.
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Thurston's Madras Presidency, 302.
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Virgil's Aeneid, The Shorter (Hardy), 298.
Virgil's Bucolics (Plessis), 197.
Walker's Examples in Algebra, 200.
Walker's Organic Chemistry, 349.
Walker's Part Songs, 514.
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Walmsley's Preliminary English Course, 38.
Walters and Conway's Limen, 152.
Warwick Pageant (Dillon and Hope), 547.
Watson's Church of England, 436.
Webb and Aldis's English Literature, 38.
Wellington, Duke of (Walter), 549.
Westaway's Latin Quantity, 197.
Wetherill's The World and its Discovery, 348.
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AND

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For Syllabus, see page 4.

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Examination of Foreign Teachers for Certificates of Proficiency in English.—These Examinations may be held at any date. An Examination of French Teachers will commence on the 12th of January. Entries for that Examination can be received up to the 7th of January.

Certificate Examinations. — The Midsummer Examination for Certificates will commence on the 29th of June, 1914.

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II. (*Feb.* 12.) *The Habitual.*—General meaning of habit: its fundamental place in education: "causing the conscious to pass into the unconscious": the upper and lower brain: the growing point: association a *general* principle of organic development, though the term is often limited to ideas: relation to habit: convergent and divergent association: manipulation of habit: habit-making and habit-breaking: the intellectual side of habit introduces the problem of power resulting from knowledge: turning fact into faculty.

III. (*Feb.* 19.) *The Perceptual.*—The senses general and special: contribution sensation makes to knowledge: classification of pupils according to the "preferred sense": the training of the senses: distinction between sensation and perception: the mind's share in perception: meaning and limits of observation: relation to inference: the observation zone: the inference zone: the inference point: the gaping point: distinction between perception and apperception: the "here and now" element in perception.

IV. (*Feb.* 26.) *Imagination.*—Relation of imagination to perception on the one hand and to memory on the other: usual neglect of the mere image-forming aspect, and resulting emphasis on the æsthetic aspect: consequent suspicion: "the busy faculty": the so-called "kinds" of imagination differentiated by the number and kinds of conditions that limit its exercise: importance of clearly imaged ends in practical life: function of the imagination in geography, history, geometry, and other branches of the ordinary school curriculum: imagination as a drag on thought: day-dreaming.

V. (*March* 5.) *The Conceptual.*—Distinction between the gathering and the elaborating of psychological material: conception is elaborative: the static and dynamic views of ideas: ideas as forces: mental content: change of activity of a given idea, temporary and permanent: co-presentation and interplay of ideas: hierarchy of ideas: the fixed idea: marginal and focal ideas: apperception masses and soul-building: fusion, complication, and arrest: mediate and immediate recall: the possibility of the subconscious influence of ideas.

VI. (*March* 12.) *Modes of Expression.*—Relation between impression and expression: physical reactions of the organism: various theories of the origin of speech: possibility of thought without speech: words and their meaning: connotation and denotation: transitive and intransitive words: definition: laws of classification: difference between *having* an idea, *realizing* an idea, and *expressing* an idea: shorthand thinking: symbolism: gestures as a means of expression: self-expression as a means and as an end in itself: self-realization as the aim of education.

VII. (*March* 19.) *The Intellect.*—Distinction between the mind and the soul: former over-estimation of the intellect: present-day tendency to depreciate it: distinction between understanding and reason: the logical and the psychological standpoint: meaning of *thinking*: its formal and its practical aspects: the purposive element: relation of means to ends: the teacher's power to influence the thinking of his pupils: the laws of thought as thought, and the fundamental necessity of thinking: the criterion of thought: possibility of self-deception in thinking.

VIII. (*April* 30.) *Memory.*—Memory as a natural endowment: brute memory: not limited to mental processes: personal identity: possibility of improving the natural memory: relation between retention and recall: Bergson's two kinds of memory: use of the memory: predominance of purpose in manipulating the memory: need for selection of material: management of mental content: mnemonics and the educational application: learning by rote: pictorial and rational memory: memory in relation to reality: connexion between memory and imagination: occasional confusion between them.

IX. (*May* 7.) *Attention and Interest.*—Attention as a general innate quality: index of educability: essentially a prehensile process: has an active and a passive aspect: quarrels about the classification of the different kinds of attention: question centres round the relation of the will to attention: interest the pleasure-pain tone that accompanies attention: interaction between attention and interest: interest as means and as end: the mechanism of attention: its vascular, respiratory, and muscular accompaniments: potency of attitude: rhythm of attention: concentration and diffusion beats.

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XI. (*May* 21.) *Temperament and Type.*—Nature of temperament: its place as the physical basis of character: permanency of temperament: Lotze's view, and its educational application: possibility of deliberate change of temperament: physical attributes of the temperaments; relation to personality: meaning of type: contrast with average: classification of pupils by types, and its dangers: place of the living child as the teacher's real subject: ideal pupil as standard: deflection from this standard in two directions according as we consider intellect or conduct.

XII. (*May* 28.) *Will and Character.*—Relation of will to knowledge, on the one hand, and feeling on the other: place of desire in development of will: the meaning and function of the motive: fallacy of "the strongest motive": resolution of the dualism implied in the process of making up one's mind: metaphysical excrescences obscuring the problem of the freedom of the will: the evolution of the will: the memory of the will: the possibility of training the will: the time element, and its importance in all discussions of the teacher's responsibility in character-training.

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(To print all the testimonials received from pupils of the Normal who have passed would require pages of this paper.)

40 Sylvester Street, Bolton.
Oct. 3rd, '13.

Dear Sir,

I have just received a communication from the College of Preceptors informing me that I have been successful in the recent Diploma Examination, having obtained the full Diploma of **Associate** with **Honours in English.** As it is my first attempt, the result is testimony to your tuition. All your notes and papers are really very useful.

Yours truly,
WILLIAM COOPER.

Middleton Road,
Pickering, Yorks.
2/10/13.

Dear Sir,

I am pleased to inform you I have obtained the **A.C.P. Diploma.** That I was successful at the first effort was due largely to your splendid papers. I thank you for your careful coaching and excellent lesson papers.

Yours truly,
GEO. WARING.

175 Abingdon Road,
Middlesbro'.
2/10/13.

Gentlemen,

I take this early opportunity of informing you that I have been notified of my success in the August College of Preceptors' Examination. I have qualified for the **full Diploma of A.C.P.** I again beg to express my thanks to your College for the splendid papers and notes which you sent me.

I am,
Yours very sincerely,
MATHIAS ALDERSON.

A.C.P. HONOURS IN FOUR SUBJECTS.

These pupils say :—

56 Folkestone Road, Dover.
October 2nd, 1913.

Dear Sir,

I have much pleasure in informing you that I have just received the result of the examination for Associate of the College of Preceptors, in which exam. I was successful in passing in all the subjects for which I sat. I have to thank you for your course of instruction, the best way of testifying to its excellence being to state that I have gained **Four Honours** out of the Six Subjects. Needless to say, I am delighted both personally and with the knowledge that this result adds another to the list of Normal students who have been so successful. Several of my friends have intimated to me their intention of becoming Normal Students in preference to others.

I beg to remain, Gentlemen,
Yours truly,
F. H. JONES.

(*Honours in Four Subjects.*)

202 Charlotte Street,
Georgetown, Demerara,
British Guiana,
September 16th, 1913.

Dear Sir,

I must thank you very much for the lessons sent me for the last A.C.P. examination. I feel that I have done well and can attribute this to the lessons I got from you. They showed me already how to condense and summarize my answers in the examination room. Had I not been a pupil of your class, I feel that I would not have done well at the examination. I am now awaiting results. My examination number is "45." You will be able to see my results when results are published. I believe I have done well in Algebra, Geometry, and Arithmetic. I shall always strongly recommend your classes.

Yours truly,
E. B. HAZLEWOOD.

(*Honours in Four Subjects.*)

26 Croft Road,
Wallingford, Berks.
Oct. 3rd, '13.

Dear Sir,

I am very pleased to state that I was **successful in "The Theory and Practice of Education"** at the recent A.C.P. Examination. As I was exempt from Examination in all other subjects, the full Diploma will be awarded. Let me take this opportunity of thanking you for the kindly interest you took in me when preparing me for the Examination. It is a significant fact that, although most of the work was quite new to me, I succeeded in passing the Examination after only one term's tuition with your College. I feel sure that your earnest and untiring efforts will secure for your various classes in the future (as they have done in the past) the success which I so sincerely wish them.

Yours faithfully,
C. J. PREECE.

54 Dyne Road,
Brondesbury, N.W.
Oct. 5th, '13.

Dear Sirs,

I am glad to be able to report a success in the recent examination for **Licentiateship of College of Preceptors,** and I am now awaiting the award of the Diploma. Thanking you for your excellent notes.

Yours truly,
CHAS. A. DEARING.

Bryngola, Holmcliffe Road,
Blackpool.
Oct. 4th, '13.

Dear Sir,

I am pleased to inform you that I have passed in the Education group of **Associate** and so obtained full Diploma. Will you please send me your Froebel and L.L.A. Guides? Thanking you for your tuition.

Yours truly,
MARY SINGLETON.

Strathmore, Lilleshall Street,
Longton,
Stoke-on-Trent.
5/10/13.

Dear Sir,

Have just heard that I am successful in all the subjects taken, *i.e.* Teaching, &c., and Science at **A.C.P.,** for which many thanks for your splendid notes.

Yours thankfully,
CHAS. SHAW SHERRATT.

"Rosslyn," Rampart Road,
Bitterne Park,
Southampton.
3/10/13.

Dear Sir,

I have just heard result of **A.C.P. Exam.** Glad to tell you I have been successful in obtaining a pass.

Thanking you for your kind attention.

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Yours very truly,
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CONTENTS.

	Page
Leader: Talk—and Much Besides	13
Notes	14
Our Policy—Government Grants—The Salary Grant—External Students—The London University—The College Lecture—Welsh School "Tops"—Sixty Years Ago—Physical Education—Pronunciation of Latin—The Montessori Course—Simplified Spelling—Women in Durham University—The Westminster Latin Play—State Grants for Schools—Herefordshire—The London Graduates' Association—The Head Masters' Conference.	
Summary of the Month	17
The External Degree and the London University Commission. By Sir Philip Magnus	19
The Born Teacher. By Prof. John Adams	20
English Girls in France	21
The Lighter Side of Pedagogy	22
Current Events	23
Correspondence: The Maintenance of London "External" Degrees—University of London Graduates' Association	23
The Spirit of Adventure. By Prof. Bompas Smith	27
Two Sketches	29
Memories of the Teachers' Registration Movement. By Prof. M. E. Sadler	30
The College of Preceptors: Meeting of the Council	31
Co-operation between the School and the Employer. By Cloudesley Brereton	32
Reviews	34
Secondary Education in England (Cholmeley); All Men are Ghosts (Jacks); What is Education? (Leathes); Aegean Days (Manatt); Proceedings of the Fifth International Congress of Mathematicians (Hobson and Love); The Age of Johnson (Cambridge History of English Literature); The Continent of Europe (Lyde).	
General Notices	37
Publications Received	44
Mathematics	46

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There are, it is true, evils in conferences. There is, in the first place, the unfortunate lack of air. Fresh air exists in London, but it is always excluded from places where men meet. We say "men" purposely; women are much more tolerant of the open window. Another objection to conferences is the bore. He cannot be altogether shut out; his presence must be borne with patience, just as the child's piece of bread and butter that is the prelude to a slice of cake. It is not always the bore's fault. Sometimes he knows his limitations, and only gives way to the repeated, but mistaken, appeals of the secretary. The third evil inherent in conferences may be likened to the pot of tea that is, or used to be, always on the hob. The feast is going on all day and every day, and it is easy to get a surfeit.

For the conference-goer, three simple rules are necessary. One is, open a window when you see a chance. If this is not possible, do not stay long. The conference headache is caused by want of air, and not by mental fatigue. Another rule is, when the bore is on his legs quietly leave the room. The third rule is of great importance. It is this: do not attempt too many meetings. Pick out the few you think most deserving, and come as a fresh, and not as a jaded, listener.

We have spoken of the evils of conferences. We should not have written this article did we not hold that the benefits far outweigh the drawbacks. There are many minor advantages, such as being in the company of adults instead of immature pupils; seeing again old friends and making new ones; learning sympathy with our pupils when we are ourselves compelled to listen passively for perhaps an hour at a time; comparing our own practice and method with those of the speaker; and learning of new methods and new ideas that have lately been put into practice. But the real good, overshadowing all others, that we receive from conferences is this: we listen to some speaker with high ideals, with sympathy, with illuminating insight, who can tell us what is the real meaning and value of our work, who can give us a true guide amid the mazes of the daily routine, who can lift us to a higher plane and send us away with a message of inspiration that will brighten our lives during the next twelve months. We mention no name here. A glance at a program will discover more than one such speaker.

Many teachers, as we have said, are conference-goers. Some are not. We are quite ready to admit that teaching is an exacting profession, and that it is of the utmost importance to maintain one's freshness. We have no blame for those who think they get more benefit from the sunny slopes of a snow-covered mountain in Switzerland. But we have blame for the teacher who sneers at conferences as a sign of servitude from which he at least is free. We have all met the man who says with pride: "I never go to teachers' meetings: I never read an educational paper. I want to get away from the boys as quickly as possible." This is not really a sound ground for a boastful attitude. We do not meet a medical man

who boasts that he never reads a professional paper, and we should have no increased respect for him if he were to be met. We do not get much help from a gas-fitter who warns us against new-fangled things and speaks of the bat's-wing burner as the latest thing in illuminants. It is probably true that in no profession except that of teaching would it be possible to find people who openly boast of ignorance and detachment.

This section of indifferents, who are partly ashamed of their position, and try to forget it so soon as the releasing bell rings, have brought, and are bringing, discredit upon the profession. Gradually the Teachers' Register will alter this state of affairs, and eliminate that minority who take neither pride nor interest in their work. The Teachers' Register sets up a standard of professional training which will in the future be demanded from all who undertake to teach. Slowly the country will come to understand that teaching is a profession that needs a definite training. Parents will refuse to entrust their children to the untrained teacher, just as now they decline to accept the unqualified dentist. The man or woman who wants to teach will now need to take a definite course of preparation for the work, and will therefore, before entering the profession, have to think seriously whether he or she means to make it the work of his or her life. The casuals will be excluded, and in ten years' time the reproach contained in this paragraph will be swept away.

It may be that doing is better than talking; but there is room also for talk. It is in meeting together, in speaking and in listening, that the sense of solidarity and mutual helpfulness arises. We learn to know one another, and consequently to understand and respect one another; we grow conscious of our aims, and learn how to gain them. To us is entrusted the welfare of a section of the children of the country. Are we doing the best that is possible for them? is the question that is ever in our hearts. Meeting, listening, discussing, thinking at the January Conferences, help us to an answer.

NOTES.

Our Policy.

Secondary education is far from being completely organized in this country. The Board of Education have official cognizance of about a thousand secondary schools. There are associations representing various groups of schools, and there is the Federal Council that draws together the organized bodies of teachers in secondary schools. The policy of *The Educational Times* is to work for the union of all teachers and schools in the secondary sphere. Such a union is essential if secondary education is to become national, and if secondary teachers are to have their due weight in influencing the administration of education as a whole, and in informing the public mind as to the aims and functions of secondary schools. *The Educational Times* maintains the view that education is a matter for the nation—that is to say, that it is the duty of the nation to see that opportunities of education in all grades are provided in every part of the country. In this provision must be included secondary schools of all types, and among these secondary schools of varied type there must be an effective union. To effect this is the policy of this paper.

Government Grants.

Mr. Pease continues to talk of a graded grant that shall have a relationship to the poverty or wealth of the various education areas. But he omits any details that would enable us to judge of the proposed change. He is speaking principally of grants for elementary schools; but it may be assumed that, if the Government are able to find what Mr. Pease calls a scientific basis for assessing grants, they will apply it to all grades of schools. Mr. Pease expresses a sound view when he says that it is the State's business to secure equality of educational opportunity for every child. In a thinly populated district the cost of such provision will be much higher than in a town, and, therefore, a larger grant is needed. The simplest and most businesslike way of estimating this grant would be on the basis of the amount spent on the salaries of teachers. Mr. Pease's plans are vague. He tells us that he cannot anticipate any concrete proposals that he may have to bring forward in the House of Commons. When he does produce his Education Bill we hope it will be found that his proposals are not unlike those that we have advocated.

The Salary Grant.

The series of articles on "Secondary Education" which we printed last summer have been issued by Mr. Cholmeley in volume form, with certain additions and appendices, under the title, "Secondary Education in England." It is some fourteen years since Dr. R. P. Scott, who was then Joint Honorary Secretary of the Head Masters' Association, edited the volume entitled "What is Secondary Education?" Mr. Cholmeley's volume comes as a fitting sequel, and indicates the enormous progress made in the organization of secondary education during the period that separates the two books. In 1899 few people had any clear idea of what was meant by secondary education. There existed, indeed, in the minds of parents a suspicion that the term meant "second-rate." We are beginning to realize now that the term means the secondary stage of one educational process; and the nation is awakening to the fact that this secondary stage, in one form or another, should be available for every child. In the past we have prided ourselves upon a generous provision of primary education. We are now finding out that this is but as the opening of the blossom, and ends before the fruit has set.

Controversy still rages around the Report of the Royal

External Students.

Commission on the University of London. Mr. Pease, speaking at Birkbeck College, said, with strong emphasis, that the external student of the University of London was in no danger of abolition. But the very strength of his denial indicated that he realized that a danger had existed. A letter in our "Correspondence" column maintains the view that the danger still exists. On this subject we are glad to have a statement from Sir Philip Magnus, who, as member of Parliament for the University of London, is closely connected with the discussions; and who, as President of the College of Preceptors, is concerned with the rights of private teachers. Private schools in the secondary sphere stand in much the same position as private schools in the University sphere. The point at issue is whether every candidate for a University degree must pass through the University schools; just as, in the view of some people, every candidate for secondary education must pass through the State secondary schools. We want organization, but we do not want to reduce every school to a given type.

The London University.

There is at present no light on the perplexed question of a home for the University of London. Mr. Pease, at Birkbeck College, insisted that there must be a central building, to which Londoners could point with pride, in the midst of a University quarter. He was understood to imply that the Departmental Committee that has been formed, in order to advise the Government after consultation with all the bodies concerned, would not consent to anything short of this. It seems safe, therefore, to argue that this Committee will have nothing to do with the proposal of the London County Council to turn Somerset House into the University. The view taken by the members of the L.C.C. who advocate this suggestion seems to be that the University would consist only of the administrative offices and that the rest of the University work would be carried on in the colleges. There is something to be said for this view, but we are inclined to hope that London will insist upon a group of noble and well planned buildings that shall prove to the material eye that the University of London is a reality. There should be no difficulty in getting the money, and the Foundling Hospital site is still available.

The College Lecture.

The lantern slides exhibited by Mr. Foster Fraser at the College of Preceptors last month were admirable. They gave a very clear idea of life amid "Camels and Sand; Arabs and Veiled Women." Mr. Foster Fraser had himself taken the photographs that he showed, and he spoke from personal experience of life in the desert and in the towns of North Africa. His lecture was easily given, and maintained the attention of his audience for an hour and a half. He showed a thoughtful recognition of the facts and tendencies of modern history in Eastern Europe and Northern Africa, and spoke seriously of the possibility of a Holy War if the religious feelings of Mohammedans were outraged. The next meeting of members of the College is fixed for the 21st of this month.

Welsh School "Tops."

At the recent meeting of the Central Welsh Board, held at Aberystwyth, the Report of the Welsh Department of the Board of Education, upon which we commented last month, came up for consideration. The Report contained a recommendation that the Welsh Intermediate schools should discontinue work above the standard of University matriculation. The schools were blamed for "maintaining a little University College department at the top," and were advised to send their pupils on to the University as soon as they had reached matriculation standard. The proposal received strong condemnation from the members of the Central Welsh Board; and Mr. O. M. Edwards, who was present as representing the Board of Education, spoke in a way that was held to modify very considerably some of the criticisms on Welsh schools contained in the Report. The Matriculation Examination of a University should not be of a prohibitive character. The standard can be reached by pupils of the age of sixteen. But if such pupils go at that age to the University they are not likely to take honours. It is much better for them to remain two years longer at school.

Sixty Years ago.

In *The Educational Times* for January, 1854, we find the following statement of the objects of the College of Preceptors. They are: (1) To give a higher tone and character to the education of the whole community. (2) To effect this by raising the standard of abilities and attainments required in instructors. (3) To obtain, as a consequence, a higher social grade for the teachers, so that the Scholastic Profession shall have its recognized position in the same way as the Clerical, Legal, and Medical Professions." Allowing for certain changes of vocabulary, this is what we still desiderate to-day; but an enormous improvement has taken place during the sixty years, an improvement due to the action of teachers, among whom the College has worked consistently and actively. In the same number is given the report of the first examination of the College, held in the preceding December. There were twenty-five candidates, all boys, and two examiners. Three schools sent in candidates, who were arranged in three classes. The curriculum has widened considerably since then. It would not be easy now to find two examiners willing to take between them all the subjects taught in secondary schools.

Physical Education.

The conditions of modern education which require the pupil to spend many hours a day in an enclosed room, and sitting at a desk, imperatively demand that a sufficiency of bodily exercise shall be provided. We are glad to see that the President of the Board of Education is fully

alive to this need. In a recent letter he says: "I have been much impressed with the improved physique of the children in the elementary schools due to the physical training which is now almost universally adopted in those schools." He goes on to say, and with this statement we cordially agree, that "I am informed by my experts that this Swedish system is greatly superior in promoting the improved physique of the nation to any military training put forward by the advocates of conscription as one of their reasons for the policy they press." We wish physical exercises were as usual and as frequent in all secondary schools as they are in the elementary schools. These body movements are necessary in addition to games, walking to school, cleaning boots, dusting rooms, or other forms of muscular activity.

Pronunciation of Latin.

Prof. H. A. Strong, in a recent number of the *Oxford Magazine*, sets out reasons for not accepting the scheme of pronunciation of Latin that has been set forth by the Classical Association and endorsed by the Board of Education. The scheme, of course, aims at reproducing the approximate pronunciation of Latin in the Augustan age of Latinity. But this can only be approximate. The Board's circular says: "On some points of detail our knowledge is incomplete, and, moreover, a completely accurate representation of the sounds of Latin cannot be given without the use of sounds and symbols not usually employed in English." Prof. Strong advocates that the pronunciation of the Jesuits should set the example for all. It is possible, too, for scholarship to exaggerate the need of accuracy and to become pedantic. Jesuits travel from country to country; their pronunciation is common to all European nations. The convenience of a pronunciation that would be readily understood anywhere far outweighs the claims of pedantic accuracy, even if this were possible.

The Montessori Course.

Dr. Maria Montessori announces that her second International training course for teachers in her method of education as applied to young children will be held in Rome from the end of February to the end of June in this year. The fee is £51. The course consists of thirty lectures delivered in Italian by Dr. Montessori. English and French translations will be read to those who desire this. In addition to the lectures there will be thirty hours of practice work, either by the Doctor herself or under her direct supervision. Fifty hours at least of observation, in some new Case dei Bambini that have been established in Rome, are also guaranteed. An examination will be held at the end of the course, and certificates issued to those who are deemed capable of applying the method to small children. The course will not enable pupils to train teachers, but only to direct children's schools. The fee is a large one, but it is well that the public should understand that educational training is a costly affair. Someone must pay, either the student or the State.

Simplified Spelling.

At a recent meeting of the Simplified Spelling Society, Sir William Ramsay made a practical suggestion. He advised the Society to issue a list of a few hundred words which were wrongly spelt and which could be simplified at once. Mr. W. Archer followed with a lecture, in which he combated the idea that reform in spelling would tend to obscure the history of the language. He said that, roughly speaking, there was not a letter in the alphabet that had one consistent use, nor a single sound represented consistently by one symbol. He pointed out that the faculty of spelling depended upon visual memory of the outlines of words, and the faculty often went with low ability. Prof. Rippmann, who is indefatigable in advocating the policy of the Society, addressed a meeting of teachers the other day at Widnes. The meeting passed a resolution to the effect that it was high time, both in the interests of education and of children, that our present irrational system of spelling should be superseded by some such scheme as that advocated by the Simplified Spelling Society.

Women in Durham University.

We welcome the announcement that in Convocation of the University of Durham a proposal that women graduates of the University should be admitted to membership of Convocation on the same terms and conditions as men was adopted. The position of women in Universities is full of anomalies. But gradually the sense of fair play is prevailing. Men do not act upon logical grounds. They are governed by sentiment. If this were not so, it would be impossible for any man-governed University to refuse degrees to women who had qualified in the usual way. We wish no harm to the Colleges for Women at Oxford and Cambridge, but we admit a feeling of surprise that women are content to study at them, knowing that at the end of their University course they will incur the supreme insult of being refused a degree on the sole ground that they are not men. It is a clear proof both of the social prestige of the Universities of Oxford and Cambridge, and of the value that social prestige has in our educational system, that women will endure this insult rather than go to one of the modern Universities where the sex barrier is not maintained.

The Westminster Latin Play.

Prepared for the Latin play, the Old Hall at Westminster School has a curiously blended suggestion of church and theatre. While on pleasure bent, the audience is full of piety, in the Latin sense of that term. When it comes to the subject-matter of the play—this year it is Terence's "Andria"—the religious element becomes less marked. It is strange that works of this kind still hold their place of honour among the educational influences deliberately brought to bear on adolescents. But apart from the nature of the play everything is excellent. It is amazing how well the youngsters go through their parts. To the unaccustomed ear the insular pronunciation of Latin sounds

peculiar, but no one can listen to the Westminster boys without acknowledging that one of the main purposes of the play has been achieved: the articulation is excellent. The staging is wonderfully well done, and the waits between the acts were commendably short. The epilogue, as usual, roused more interest than the play itself. The players appeared to enjoy themselves as much as the audience, which is saying a good deal. Making all allowance for the unfair advantage a Latin joke has over an English one—for we must all make shift to laugh at the Latin form under penalty of being suspected of not understanding it—the quips of the epilogue had a brilliant success. The play of 1913 well sustains the reputation of the school.

State Grants for Schools.

The Education Sectional Committee of the National Union of Women Workers convened a conference last month to discuss the question of State grants for schools. Mr. Cholmeley introduced the discussion, advocating the views that are familiar to our readers. The opposition was led by Dr. Sophie Bryant. It is a well known fact that a new idea is always received at first with a direct negative, often a contemptuous negative. So it has been with Mr. Cholmeley's proposals. But opinion is beginning to recover a normal attitude after the shock of the new idea. We find the *Nation*, a Liberal paper, saying in an editorial note: "We are sorry to see that Mr. Pease committed himself to the principle of national grants based on attendance. We should prefer to see them given as a contribution to teachers' salaries." The *Morning Post*, under the heading "Schools and Scholars," deals with the matter at some length, and states (in reference to the proposal to base grants upon salaries): "It is one of those ridiculously obvious steps, in face of which, as in the case of Columbus's egg, we can only marvel at our folly in not having seen its necessity before."

Herefordshire.

It appears possible that at the end of this month all the State schools for young children in Herefordshire may be closed. The Education Committee of the county has not consented to provide a scale of salaries for the teachers, who, in consequence, have handed in their resignations, to take effect on January 31. The position is a serious one, and is greatly to be regretted. It is to be regretted that teachers who are united in a strong society, who have opportunities of bringing their views before Parliament when the House is sitting, and who have a widely read Press organ, should find it necessary to take this final step of resigning their posts as a protest against what they deem to be unreasonable treatment at the hands of the Local Authority. But the matter has been going on for a long time, and we may take it that all peaceful means of persuasion have been tried and have failed. As we said when we first commented on the matter, it would be unfair to deny to teachers the one effective weapon that labour can use in its relations with capital. The rate-payers, in this instance, represent capital.

The London Graduates Association.

Our Correspondence column shows a strong feeling that the external student of the University of London is in danger of extinction. Just as we were going to press we received a letter from the Hon. General Secretary of the University of London Graduates Association calling attention to a recent utterance of Lord Haldane to the effect that the time had not yet come when we should be at liberty to deprive the external student of his chance to get a degree, but that the time would come. The Graduates Association is anxious to strengthen its membership, especially by the formation of local branches, in order to be able to make still more effective protests against the views put forward by Lord Haldane. The minimum subscription to the Association is 1s., and the address is 25 Victoria Street, Westminster, S.W.

The Head Masters' Conference.

The Head Masters' Conference met at Reading on the two days preceding Christmas. Sir Alfred Ewing gave an address on "The Scheme of Special Entry for Public-school Boys into the Navy." A resolution, welcoming the establishment of the Teachers' Registration Council and approving the general principles implied in the conditions of admission, was carried unanimously, with three dissentients. It was decided, in view of the prospect of a national system of education, to instruct a Committee to consider methods of co-operation by the public schools in such a scheme, and to report to the next Conference. A resolution was carried unanimously, approving of the new regulations for Responsions at Oxford, and hoping that a similar reform may be carried at Cambridge; to which was appended a rider, carried by a large majority, to the effect that no reform can be finally satisfactory so long as Greek is a compulsory subject in Responsions and the Previous Examination. On the second day of the Conference the pronunciation of Latin was discussed. A majority was in favour of making the scheme of the Classical Association obligatory; but the discussion indicated that there was little chance at present that a uniform scheme would be everywhere adopted.

SUMMARY OF THE MONTH.

At the recent distribution of prizes at Wilson's Grammar School, Camberwell, the Head Master, Mr. Harold T. Knight, referred to statements that had been made that the admission of London County Council scholarship boys lower the tone of public schools, and that these boys take no part in school games. Mr. Knight said he totally disagreed with these views. So far as Wilson's Grammar School was concerned, they had no reason whatever to feel alarmed that the London County Council was giving scholarships. Surely it was a confession of weakness for a school to say that its tone could be lowered by the admission of any class

of boy. They had found no tendency in that direction at Wilson's. Moreover, more than half their cricket and football teams were London County Council scholars. Mr. Cyril Cobb said he was glad to hear that London County Council scholars were unrecognizable in that school. It was certainly a great compliment to elementary school education in London.

Viscount Wolmer, M.P., speaking to some five hundred boys at Shrewsbury School last month on behalf of the objects of the Cavendish Club, said the public-school men would have the responsibility of running this country sooner or later, whether they liked it or not. The housing and poverty of the people in thousands of cases were awful, and they had to take their share of responsibility in finding remedies. He had not had the pleasure of meeting Mr. Larkin, but he had of meeting Mr. Keir Hardie. "I do not think I agree with him in anything, but I do respect Mr. Hardie's sincerity," said Lord Wolmer. If, however, we object to the opinions of these Labour Leaders, it is our duty to see that we take the same interest in the government of the country that they do, and show that we have a better way of doing it.

At the Northern Counties Education League, held at Sheffield in the early part of December, resolutions were passed thanking the Government for the promise of new education legislation, urging that a Bill should be passed next year, and expressing a hope that in redressing old grievances new ones would not be created by countenancing the claims to a sectarian right of entry into schools during the period of compulsory education. Dr. Clifford, who was absent through illness, wrote:

It will, I trust, be felt that the work of our League is more urgent than ever. We are in imminent peril of compromise with the clerical reactionaries in any legislation that is undertaken in 1914. We are in the grip, alas! of the House of Peers again, and we have a sectarian majority in the Commons. These are fateful factors. We may be sure that nothing will be allowed to pass that does not strengthen and extend the sectarian elements of the Education Act of 1902, and, in my judgment, we are better without any legislation than to pay that price for it. Every care must be taken that our position is not worsened. Every attempt to override the decision of the voters by the so-called wishes of the parent must be resisted, for all who are acquainted with the rural districts know that the real "wishes" are those of the clerically minded rulers of the village. The "right of entry" of the ecclesiastics into Council Schools must be prevented at all costs.

Prof. John Adams, lecturing on American Education, at Bedford College, said that at present there was not the same social cleavage in American education as there was in England. The elementary schools differed from the secondary only in so far as they dealt with different subjects. In America the school house was the centre of the social life of the neighbourhood, but there was a tendency now to separate the school for a higher social class. Americans denied the existence of such a tendency, but observation appeared to warrant the inference. Political jobs were not common in American education, perhaps because there was not enough money in the business to tempt politicians. Further, teachers must be trained to some extent at least, and that would interfere with the easy working of political jobbery. Referring to University education in America, Prof. Adams showed that the fundamental principle of the American University was utilitarian, but they were all developing quite a strong humanistic side.

Sir Philip Magnus, presiding at a meeting of the Women's Industrial Council, congratulated the Council on the marked success of the Domestic Training School and Nursery recently established at Hackney, where the girls receive a training which enables them to get excellent wages as nursery maids. He would like, he said, to see the same idea applied to all other housewifery work. There was a great demand in middle-class families for well trained cooks, and the trade schools should pay special attention to that. London was the only city in this country where trade schools had been established, and they were doing excellent work. It was most important that the trade schools should continue the general education of the pupil side by side with the technical instruction.

Justice Seabury has ordered the reinstatement of a married woman teacher in New York who had been dismissed by the Board of Education for "absence from duty for the purpose of bearing a child." In giving his decision the Judge said:

If Mrs. Peixotto's absence was caused by "serious personal illness" of a temporary character, she could not be dismissed either upon this ground or upon the ground of "neglect of duty." It requires no strained or forced construction of the law to hold that the words "serious personal illness" includes illness caused by maternity. The fact is, the Legislature has sanctioned the employment of married women as teachers. Married women being lawfully employed as teachers and excusable for absence caused by personal illness, the idea that, because the illness resulting in absence is caused by maternity, it therefore becomes "neglect of duty," is repugnant to law and good morals.

Lord Rosebery, delivering an address to the students of the Royal Technical College, Glasgow, urged his listeners to look beyond technical pursuits, and to acquire the habit of reading for its own sake, however small a time they could give to it. It would enrich their work, relieve their minds, and feed their imaginations with higher ideals. Even in youth they should begin the habit of reading. By literature he meant the very best literature they could assimilate. He did not believe in reading the highest works of art or of imagination unless they could be assimilated; if they could not they only produced repulsion and disgust. If those listening to him felt it to be their duty to read "Paradise Lost" and they did not like "Paradise Lost," he advised them to put it down. If they did not like "Paradise Lost" let them try "Don Quixote." If they found him too old-fashioned, let them take Dickens and Thackeray, the great classical authors of his youth. If they did not like them, let them try something else—although, if they did not like them, he confessed he was at his wits' end to recommend them anything.

Bishop Boyd Carpenter, speaking at a meeting for the promotion of physical education, said that he looked forward to the day when medical inspection of school children would be followed by medical inspection of boys and girls about to leave school. No boy should be permitted to enter a trade dangerous to his health or likely to jeopardize his future usefulness. If a boy was tubercular—if even he had inherited a tendency towards tuberculosis—he should lead an open-air life, and have open-air work. He should not be apprenticed to a so-called "dangerous" trade. Many men were forced into an unequal battle with ill-health who might have been saved that sorrow and anxiety had they been properly guided when entering upon their life-work. Others broke down and came upon the rates with their wives and families. He believed that money spent upon this scheme would yield a rich harvest in the future; it would be an investment in national health, and would help to mitigate the present wastage of life and vigour.

Lord Derby, addressing a meeting of Scoutmasters, said he would be sorry if there got into the Scout movement any idea of its being, so to speak, a Sunday school continuation. It was nothing of the kind. If they taught boys to run straight, to be unselfish, and to try to make themselves of use in the world, it seemed to him that they were doing what they could, and probably with great success, to fit them to be good citizens of this Empire. They wanted that sort of training, and if they inculcated those principles into boys they were, to his mind, making them instinctively religious—making them know instinc-

tively and see very clearly the difference between right and wrong, with a compulsion to do right, not only for their own sake, but for the credit of the Scouts to which they belonged. There was another thing to his mind—he might be hauled over the coals for saying it, but he was going to say it all the same—namely, that he thought it inculcated what there was very little of at the present day, and that was discipline.

The Executive of the National Union of Teachers passed the following resolution on December 6:

That the proposals of the Herefordshire Education Committee are totally unsatisfactory, and the Executive hereby affirm that no solution of the present difficulty can be arrived at which does not provide a scale of salaries satisfactory to the Union and the teachers of the county.

Whilst the Executive was discussing the matter at Russell Square, the Teachers' Committee was sitting at the Union offices in High Town, Hereford, and these two independent meetings practically arrived at identical resolutions, which were afterwards telephoned through to each meeting. The resolution passed by the teachers was as follows:

The Council of the Herefordshire County Teachers' Association in meeting to-day (December 6) considers the report of the Special Committee to the County Education Committee to be no answer to the teachers' case, and affirm that the establishment of an adequate scale will alone meet the difficulty.

THE EXTERNAL DEGREE AND THE LONDON UNIVERSITY COMMISSION.

By Sir Philip Magnus, M.P.

The graduates of London University will be glad to learn from the speech of the President of the Board of Education at the Birkbeck Institute on December 10, that the Government have no intention of abolishing the external degree, but on the contrary are desirous of strengthening it. No clear explanation was given of the means to be adopted for strengthening that degree, and we must accordingly look to the arrangements suggested in the Report of the Commissioners for further information. It is satisfactory to note that Mr. Pease has recognized that public opinion is distinctly opposed to any proposals that would curtail the opportunities now enjoyed by the unattached student to obtain his degree at the University, and the statement that "the Government would certainly not have countenanced any proposal to abolish that degree" will be generally welcomed.

It is, however, somewhat difficult to reconcile that statement with some passages in the Report of the Commission, of which Lord Haldane, a member of the Government, was Chairman. It may be, however, that Lord Haldane now recognizes that no University of London Bill would have any chance of being accepted by the House of Commons if it contained clauses giving effect to some of the views expressed by the Commissioners.

Speaking, not long ago, at a meeting of Secondary and Technical Teachers, Lord Haldane is reported to have said: "We have outgrown the period of old-fashioned examinations. What we wanted was a record . . . but the time has not yet come when we were at liberty to deprive the external student of his chance to get an external degree—that would come in good time."

The Commissioners more than once speak of the external degree as an "evil" and refer to its "ill effects." At the same time, they very correctly state "that no hard-and-fast line can be drawn between the internal and external students studying in London, for many external students have, in fact, received the whole of their instruction in schools of the University or under recognized teachers"—a conclusion which it might have been thought would have induced the Commissioners to suggest that existing arrangements (which are, I believe, regarded as satisfactory to the external student) should, for the present, be continued. It will be seen, however, that, according to the recommendations of the Commissioners, those arrangements may be materially modified, and so modified as to lower very greatly the value of the degree.

It would certainly seem from a perusal of the Report that the Commissioners have only been prevented from recommending the abolition of the external degree by the consideration of the hardship which such a proposal might temporarily inflict upon certain students, for they state: "In the broader national interests, the sooner the demand for external degrees can be reduced to a point at which the degrees themselves can be abolished without hardship the better it will be for our schools and teachers." Moreover, it is only conditionally and under certain restrictions that the Commissioners appear to have recommended that the external degrees should continue to be granted. They say, "although we are prepared to recommend that candidates who have not studied in schools of the University should be admitted to the general examinations of the University in all cases where exclusion might involve individual hardship or injustice, there are two groups of study—Medicine and Engineering—in respect of which no such hardship would arise from their exclusion, while grave injustice to others would be caused by their admission."

There are, of course, valid reasons—educational and professional—for requiring all candidates for Medical degrees to have studied in a medical school, as in no other way can they obtain the knowledge, experience, and skill essential to the practice of their profession, and for these reasons the University has always required evidence of attendance at a medical school as a condition of admission to its examinations; but the analogy between Engineering and Medicine is not quite as sound as the Commissioners have assumed. The Engineering student can acquire in the commercial shop practical experience very similar to that which the Medical student obtains in the hospital; and, although the school laboratory and workshop offer facilities for scientific investigation which may not generally be elsewhere attainable, opportunities not altogether different are available in the works of many commercial firms, which are open to external students of engineering, whereas no such opportunities outside the medical school and hospital are open to the student of medicine or surgery.

All those who have enjoyed the advantage of a University education will realize the intellectual gain of receiving instruction from a distinguished University teacher, and the help they have received from his personal influence, and from being enabled occasionally to participate in his researches. But the arguments used by the Commissioners for excluding the future engineer or the student in other branches of technology from the external degree are equally applicable to the future architect or lawyer. The fact is, that, whilst it is most desirable, as suggested by the Commissioners, that further opportunities should be provided for students of all classes to profit by University (including the higher technical) education, no one should be practically compelled to attend lectures or courses of study in schools of the University, in order to obtain a degree in any subject other than Medicine or Surgery. The London University, to quote Mr. Pease's own words, "must always be different from any other University," and, as regards the external student and the external degree, I believe it will be found that educated public opinion is in full agreement with what the late Prof. Huxley stated some years ago in a letter on this very subject. He said: "I am in favour of a teaching University, but totally against compelling students in Arts or Science to attend lectures of professors in any of the affiliated schools."

A Joint Meeting of the National Union of Teachers, the Association of Teachers in Technical Institutes, and the University of London Graduates Association, to support the claims of external students, will be held in the Queen's Hall, Langham Place, W., on January 9, at 8 p.m. Sir James Yoxall will be in the chair.

THE BORN TEACHER.

By Prof. John Adams.

It is of the nature of man to take special pride in qualities which he has had no hand in producing. He is prone to be prouder of his birth than of his attainments, of his capacity than of his training. Menotti, the inspirer of the "Complete Guide to Chimneys" that was fated never to be written, took no credit for the earnest study he had given to his subject when he used to exclaim in moments of lofty enthusiasm "nascuntur poëliers." He did not mean to reduce to an absurdity the Ciceronian "poeta nascitur non fit." He merely expressed the claim that all professional men make in their hearts that their particular calling can be practised only by men of very special gifts. If the stovemaker is born not made, then there is some reason why all stovemakers should thrust out their chests a little, and exemplify the expression of what Mr. McDougall politely calls "positive self-feeling." It is true that the stovemaker's elation may be a little diminished when he finds that humbler as well as loftier callings than his own claim pride of birth. If we are to accept the results of the practical experiments made by Mr. Frederick W. Taylor, it would appear that we must in honesty proclaim the pig-iron handler as born not made. Only 12½ per cent. of those actually employed in this modest calling were found to be qualified for it by birth. The remaining 87½ per cent. seem to be nothing better than "made" pig-iron handlers. Is it because of such calculations that people are so proud of being born, and so ashamed of being made?

What do we mean when we say that the teacher is born not made? For answer we turn to Mrs. Frederick Macdonald, the distinguished authority on Rousseau. She greatly increases the obscurity of the problem; for when she is speaking about the M. Heger who had such an important influence on the life of Charlotte Brontë, she says: "He was a heaven-born teacher; very irritable, nervous, and impatient." Now we know.

An almost equally disconcerting answer to our question is supplied by the implications of some who are opposed to the training of teachers. Surely it cannot be seriously maintained that certain persons are born into this world ready-made teachers? We might as well claim at once that they come into the world capped and gowned. The long popular theory of innate ideas fell into discredit; the doctrine of innate faculties is fast passing to the place prepared for it; can the principle of innate professions hold its own? All that even the extremists can maintain is that certain persons are born with a natural gift for teaching. It does not appear to be implied that they are born with a natural *desire* to teach. At any rate those who have the greatest desire to teach are not always those who are most capable of teaching. The people most generously endowed with this desire are not—in spite of popular prejudice to the contrary—confined to the ranks of the professional teachers. What is awkwardly called "the pedagogical turn of mind" is not exemplified in ordinary society so much by professional pedagogues as by lay amateurs. The Ranee of Sarawak, in her recently published "My Life in Sarawak," has an interesting passage on this matter: "It must be remembered that the greatest pleasure to Malays who have passed their first youth is in teaching others. Their one idea on approaching young people is to 'ajar' them. 'Baik sahya ajar' (it is well that I should teach him) were the words I was perpetually hearing from many Malays during my journeys with Bertram [her son who had not yet gone up to Cambridge] through Sarawak." There are English people, not always after they have passed their first youth, who share this amiable inclination to instruct their fellows. But the people one meets with—mostly in railway trains—who are anxious to "ajar" us, we are not inclined to call born teachers. We find other names for them. The born teacher no doubt fits into Chaucer's description of one who "wold gladly teche." But then he would also "gladly lerne," which is not precisely the characteristic of him who would "ajar" us in railway carriages.

The truth is that when this innate profession of teaching is examined it is found to depend upon the gift by nature of one predominant quality, the power of control. No amount of training, we are told, will enable a man to keep order, unless he has been born with certain qualities. To this a very cheerful assent may be given. Rochefoucauld, who, in this quarrel at least, is an unbiased witness, tells us that "La foiblesse est le seul défaut qu'on ne sauroit corriger." What is true of life in general is specially true of teaching. No training college, or school with "a training department," can supply with a backbone a man who comes to it genuinely invertebrate. But in applying this admission to practice, two very important considerations have to be kept in mind. First, the number of people born into the world totally incapable of maintaining order in school is very small. Experience would seem to indicate that of candidates for admission into training colleges not more than about 3 per cent. are invertebrate in this metaphorical sense. The evidence of experience in the matter of the number of the totally unfit for discipline is corroborated by the recent investigations that have been made into the percentages of the unfit for the various branches of the school curriculum. There is good reason to believe that the percentage of the totally unfit for any subject is remarkably small—between 3 and 5 per cent., in fact. It has to be admitted that in the present case while only this small percentage is absolutely barred from the profession, there remains a somewhat large percentage—numerical results calculated in connexion with other subjects would suggest something between 19 and 23 per cent.—of people who will never make really good teachers, but who by careful training can be made serviceable members of a school staff. Let it be granted at once that if the conditions of service in our profession were so improved as to attract better material, it would be to the advantage of all concerned that this submediocre section should be encouraged to try other occupations. But as conditions at present stand, it is some satisfaction to know that training can work up such inferior material into something that is not altogether inefficient.

But the second consideration, and one of much greater consequence, is the fact that the power of control, important though it be, is not of itself enough to equip a teacher for his work. If we are to assume that the teacher is born not made, we had better assume him to be qualified all round. If he is to be born a ready-made teacher he must bring with him not only the power of control, but certain other and quite different qualities. It is willingly admitted that without the power of control no teacher can be successful, whatever his other qualities and attainments may be. It is a *sine qua non* of our profession. But it is too frequently regarded as the one essential. Its absence is without doubt at once detected; but if it be present it sometimes masks the absence of other and not less essential qualities. It is possible to maintain order and do nothing else. Some teachers spend their whole time in keeping order. They do it very thoroughly, but they do nothing more.

On one occasion the head master of a large elementary school had to attend the police court to give evidence in certain cases of non-attendance of pupils. The second master took the opportunity of neglecting his work. The master next in seniority happened that morning to be genuinely ill. The result was that 120 boys in a large room were left with no teacher over them. The school porter, who happened to be an old drill sergeant, discovered that something was wrong (not a particularly difficult discovery), and rushed upstairs and into the room. Springing upon the teacher's platform, he glared upon the pupils, who at once fell back upon their good behaviour. The glaring went on for an hour and twenty minutes, and so did the good behaviour: but nothing else did. This fierce eye-compelling old soldier is typical of a certain kind of teacher, fortunately not too

common. Such teachers can carry on their classes without being found out as the utterly incapable persons they are: for the excellent order they maintain prevents the ordinary observer from suspecting the absence of genuine instruction. It is not to be supposed that the pupils of such teachers learn nothing: if this were the case discovery could not be avoided. The important thing is that the pupils do not learn because of the teacher, but in spite of him. We can never repeat too often that teaching and learning are correlative processes. Teaching and learning may go on together side by side, and yet not be causally related. The teacher may go through a process that he calls teaching, and the class may go through a process that is really learning, and yet the two may have no causal relation. Unless the pupil learns *because* the teacher teaches, there has been no real teaching done. If we accept Jacotot's definition of teaching as "causing another to learn," those discipline-compelling persons may claim to be teachers. But on the same grounds many more might claim to be regarded as teachers—the parents who send the children to school, the attendance-officer who sees that they go there, the inspector who makes sure that the teacher does his work, the clerk at the education office who thinks he is at least making education possible. The teacher's business is to carry the process a bit further, and "cause his pupils to *know*." To succeed in this it is not enough to be able to keep them in order: he must do positive work that demands special knowledge of human nature and special skill in manipulating it. When a man is able to maintain order in his class, he has only proved his fitness to begin the study of his profession. He is only at the threshold, and in most cases has the whole of his craft to learn.

It is true that when Nature has given a man the power of control she may be good enough to give him also what is sometimes called the instinctive knowledge of how to present matter to his pupils. Every experienced trainer of teachers knows that certain young people need infinitely less attention than others. They appear to grasp more or less intuitively how to deal with pupils both on the disciplinary side and on the side of instruction. To this extent they may be said to be born teachers, and every trainer wishes there were more of them, but even the best endowed candidate for the profession needs a certain amount of guidance. In this matter we may learn much from what is being done at present by psychologists in working out the relation between the instincts and the habits of human beings. The difference between an instinct and a habit is that the instinct is innate and the habit acquired. But out of the same instinct many different habits may be developed, and guidance is necessary. A habit may be regarded, if the figure is permissible, as an instinct caught and tamed. The trainer of teachers is really an instinct-catcher and instinct-tamer. What experience has taught him is that every human being, however well endowed by nature, needs some training, but the rapidity with which that training can proceed varies greatly from case to case. We have seen that a certain small percentage of material offered must be rejected as altogether unfit. A correspondingly small percentage needs very little training indeed. Between the two extremes is found a great mass of average material that needs an amount of attention that increases with the inferiority of the material. Putting the matter in another way, it may be said that the trainer's reward for his labours varies with the excellence of the material. With almost no effort he gets a great deal of credit from those who have been born most nearly ready for their profession, whereas he spends most of his energies in getting the inferior material just up to efficiency standard.

Where the conscientious trainer of teachers is most apt to go wrong is exactly where the teacher in an ordinary school is also most in danger. It has been well said that one of the most difficult things for an enthusiastic teacher is to let a clever boy be clever in his own way. Everyone naturally likes his own special form of cleverness. The trainer of teachers, in particular, is accused of having a peculiar weakness to have things done "just so" in regard to school method. Dickens deals faithfully with the extreme methodologists in his description of that typically "made" teacher, Mr. M'Choakumchild: "He and some one hundred and forty other school masters had been lately turned out at the same time, in the same factory, on the same principles, like so many pianoforte legs." Training college people, with no sense of humour, have been known to defend the uniformity of their products on the ground that there is no objection to similarity among pianoforte legs so long as the pattern is good—which only illustrates how hard it is for a conscientious trainer to let his subjects develop naturally along their own lines. As a matter of fact the value of method as such increases with the commonplaceness of the persons who use it. The teacher of great natural capacity, the sort of person who runs the risk of being called a born teacher, should be allowed a great deal of freedom in manipulating methods, while the dull, conscientious, plodding person should be called upon to stick somewhat closely to the methods that experience has shown to be most satisfactory in all ordinary circumstances. It is true that even the man of great natural capacity for teaching will find it to his advantage to adopt and follow a great number of general principles of method laid down by his predecessors in the profession. The study of education has now resulted in a body of principles that are of recognized validity, and are no longer matters of dispute. These must be respected even by the born teacher. But so long as he observes these he ought to be allowed considerable latitude in modifying the plans suggested by masters of method and even by successful teachers of great experience. A "born teacher" with a bad method will no doubt produce better results than a commonplace teacher with the best methods available: but what about the results of the born teacher working with the best method? Why not aim at the best result possible by harnessing the best capacities with the best methods? Is there anything wrong with the principle that the born teacher should not be allowed to handicap himself with a bad method?

ENGLISH GIRLS IN FRANCE.

At the present time there are many girls who have, and very rightly, a keen desire to visit France in order to acquire its language and some knowledge of its literature, customs, and people. They perceive only too clearly, what a generation or two ago was not so clearly seen, the great advantages which the mastery over another language confers on its possessor. They realize how far English girls are behind the girls of the Continent in their ability to speak or write in any language save their own.

But to obtain a post in France at a minimum of expense, and one, too, where opportunities for making a thorough acquaintance with her language and literature are adequate to one's needs, is not so easy a task as might appear at a casual glance. I propose, therefore, to deal in a few words with one course open to any girl of average intellect and possessed of a sufficiently sound general education.

It is probable that many people have not heard of the opening offered to such applicants by the French Government itself. In the words of the blue form issued by the Board of Education, "The Minister of Public Instruction in France has decided that English students shall be admitted into Training Colleges for primary-school teachers to fulfil the duties of assistant teachers—*répétitrices*—of English."

The advantages of such an offer are at once apparent. In addition to the satisfaction of knowing precisely the duties and responsibilities—which are not heavy—of such a position, every care is taken for the personal well-being of the student, and every facility possible offered for the improvement of her education.

The students are required, in return for these advantages, to give practical instruction to girls and teachers—should they require it—in the English language, their duties to occupy, at the most, but two hours a day. They are allowed, on the other

hand, to attend the various lectures and lessons given in the college or to otherwise occupy their leisure time. Such students would do well to follow, in their own hours, the French course of the "Guilde Internationale" of Paris, which offers special facilities to English girls residing in Government establishments, in that these courses are conducted by correpondence and do not enforce continued residence in Paris or personal attendance at the classes, conditions imperative for other students who may belong to the Guild. Those who have followed the course during the whole of the school year can enter for the examination, held at Paris about the middle of July and lasting four to five days, which confers upon the successful student the "Diplôme d'Etudes Françaises."

There are of course, certain forms and conditions to be observed in applying for such posts in the "Ecoles Normales." The age limit extends from eighteen to thirty, and as some knowledge of French is necessary the student is required to attend at the Board of Education for a short *viva voce* examination, when questions are asked both in French and English on easy grammatical points and literature in general.

The College year lasts from October to July with the interval of short holidays at Christmas and Easter, which may, however, be spent in the school, and between forty and fifty posts fall vacant every twelve months. The towns in which the training colleges are situated range throughout the length and breadth of France, and personal choice in the matter of locality is considered as far as is compatible with existing circumstances.

What I would urge, then, is this. For any English girl desirous of improving her knowledge of the French language for the purposes of the Higher Examinations, or of generally completing her education, does it not seem far wiser to apply for such a Government post rather than to accept a position, probably *au pair*, where her leisure hours are apt to be encroached upon and where opportunities for learning French are somewhat uncertain?

THE LIGHTER SIDE OF PEDAGOGY.

A SCHOLARSHIP candidate, aged about eleven, being asked to explain the word "conversational," said: "Conversation means joreing one-another." Asked what she knew about Tennyson, another child replied: "Tennyson wrote The flower in the crannied wall a lovely little peace of poetry it is so dainty."

* * *

THE science student was giving a criticism lesson in English Literature. The class were reading Gray's "Elegy." A verse was read aloud, and the student made desultory remarks and asked vague questions, growing every moment more bewildered. The phrase was read, "The mournful owl does to the moon complain." "Now what does that mean?" said the harassed student. No replies. "Hoots, of course," he said; "only they couldn't say 'hoots' in poetry, so they had to put it in a roundabout way."

* * *

AN East Anglian farmer once said to Mr. Birrell: "If all the money spent on education in the last twenty years had been spent on artificial manure, this would, indeed, be a happy country." Mr. Birrell said to the farmer: "You prefer muck to mind," and the farmer replied, "I do."

* * *

"Now, Tony, if there were nineteen sheep in a field, and seven jumped over a wall, how many would be left?"

"None, Miss Stowe."

"No, Tony, think again. There were nineteen sheep and seven jumped over the wall."

"Well, Miss Stowe, I think I know what you mean; but really Miss Stowe, you may know arithmetic, but you don't know sheep."

"HE can't do nothing right!" Why is this wrong? was the question. One candidate declares it to be "baby talk." A second says it "sounds like slum language." And yet a third explains with some pedantry, "If you was to talk like that people would say where was you brought up, and what school did you go to, and did they learn you any grammar?" We fear it is a true indictment. Another examinee is at closer grips with the problem, and explains that "two negatives make an infirmity," and this, of course, is painfully correct. The same idea was otherwise expressed in the words, "Two negatives are abundant."—*Liverpool Daily Post.*

* * *

A CUMBRIAN school teacher vouches for the accuracy of the following story:—A Government Inspector, convinced that Cumberland school children were unobservant, slow of comprehension, and, in short, thick-headed, while on a tour of inspection, accompanied by a friend, ventured to demonstrate the fact. Visiting a school not far from the fells, he asked the children to name a figure so that he might chalk it on the blackboard. A little girl gave the number 78, whereupon the Inspector wrote on the blackboard 87. There was silence in the room. Again the inspector sought further proof of his theory. "Give me another number," he said to the children. This time a boy exclaimed "45, sir." The Inspector chalked 54 on the board. Again there was dead silence. "You see," said the Inspector, *sotto voce,* turning to his friend, "these children are absolutely the limit; they know nothing and see nothing." To the children he said, "Now, then, once more; another number." A small boy in the class exclaimed promptly: "Write 77, sir—and change that if you can!"—*East Cumberland News.*

* * *

TRIALS OF A SCHOOLMASTER.

Cujusvis hominis est errare.

With emphasis a trifle strong,
I said it was completely wrong.

Again he puts it; then I storm
And make him stand upon the form.

Then he commits the selfsame sin
A third time—and I keep him in.

To get it right he still declines;
I give him several hundred lines.

He makes the same mistake again;
Then comes my last resource—the cane.

I've looked the matter up to-night,
And find the little beast was right!

—Reprinted by permission from "Fatuous Fables," by Denis Turner. (Fifield, 2s. 6d.)

A SPECIAL effort is being made to place Westfield College on a sound financial basis. The College was founded in 1882 as a residential college for women, and is an integral part of the University of London. A considerable sum is needed for the development of various departments and for the endowment of scholarships and of the library, and it is the aim of the Council to raise a fund of £35,000 for this purpose.

WITH a view to commemorating the distinguished services to education of Mrs. Woodhouse, for nearly fifteen years Head Mistress of Clapham High School, and formerly for twenty years Head Mistress of Sheffield High School, it was decided on her resignation to raise a fund to be used for the assistance of the higher education of girls and students, either at the University or during professional training for teaching. The fund will be known as the "Woodhouse Fund," and a list of the contributors will be ultimately presented to Mrs. Woodhouse. Donations may be sent to the Hon. Treasurer, Miss J. Dingwall, Clapham High School, 63 South Side, Clapham Common, S.W.

THE death is announced of Mr. Charles Henry Wyatt, Director of Education in Manchester.

CURRENT EVENTS.

On Wednesday, January 21, the members of the College of Preceptors are invited to a social meeting, at 8 p.m. There will be musical and humorous recitals.

The Conference of Educational Associations opens at the University of London on January 2 and continues until January 10. Twenty-one Associations are taking part. The College of Preceptors has made arrangements for two meetings. On January 6, at 8 p.m., Sir John McClure and Mr. A. A. Somerville will deal with the Registration of Teachers. On January 8, at 8 p.m., Mr. Michael Sadler and others will speak on "The Position of Private Schools in a National System of Education."

The L.C.C. Conference of Teachers will be held at the Birkbeck College on January 1, 2, and 3. The "Prefect System," "Fatigue," and "Educational Experiments" are among the subjects for discussion.

The Annual General Meeting of the Incorporated Association of Assistant Masters in Secondary Schools will be held at the London Day Training College, Southampton Row, on January 3.

The Annual Meeting of the Mathematical Association will be held on January 7 at the London Day Training College, Southampton Row.

The Annual Meeting of the Incorporated Association of Head Masters will be held at the Guildhall on January 6 and 7.

The University of London Students' Representative Council has decided to publish a University magazine entitled *The Undergraduate*. Four numbers will be issued during the current session, the first appearing this month. The subscription for the first year has been fixed at 2s. post free. Single copies will also be obtainable at 6d. each. All communications—articles, correspondence, subscriptions, &c.—should be addressed to the Editors, *The Undergraduate*, University of London, S.W.

Arrangements have been made by the Military Education Committee, under the authority of a resolution adopted by the Senate on July 16, 1913, for a Conference on Military Education in London in connexion with the University. The Conference will be held at the University on Wednesday, January 21, at 3 p.m., and the Vice-Chancellor (Dr. W. P. Herringham) will preside.

Sir Edward Anwyl, who for twenty-one years has been Professor of Welsh at the University College of Wales, Aberystwyth, has accepted the appointment of Principal of Monmouthshire Training College.—Caerleon College, which is being erected at a cost of £30,000, will be opened in September next.

Mr. E. H. Pritchard, at present Head Master of the South-Western Polytechnic Secondary School, has been appointed by the London Education Committee Head Master of the County Secondary School, Chelsea, which will replace the Polytechnic School.

Mr. Arthur W. Mason, B.A., B.Sc., at present Senior Assistant Master in the Tynemouth Municipal High School and Pupil-Teachers' Centre, has been appointed as Head Master of the Leiston Higher Elementary School and Pupil-Teachers' Centre, under the East Suffolk Education Committee.

The Governors of the Imperial College of Science and Technology have constituted two new Chairs of Chemistry, and appointed Dr. Jocelyn Field Thorpe, Ph.D., D.Sc., F.R.S., to be Professor of Organic Chemistry, and Dr. James C. Philip, M.A., Ph.D., D.Sc., to be Professor of Physical Chemistry.

The post of Warden of Wadham College, Oxford, rendered vacant by the resignation of Dr. Patrick Wright-Henderson, has been filled by the election of Mr. Joseph Wells, M.A., Fellow and Tutor.

At a meeting of the electors of the Corpus Christi Professorship of the Latin Language and Literature at Oxford University, Mr. Albert Curtis Clark, M.A., Fellow of Queen's College and University Reader in Latin, was elected Professor, in place of the late Prof. Robinson Ellis. The emoluments of the Professorship, including a Fellowship at Corpus Christi College, amount to £900 per annum.

Miss A. de Selincourt, Principal of Westfield College, Hampstead, has been elected a member of the Board of Oriental Studies, University of London.

Mr. Edward Impey, of Eton College, having been ordered a complete rest by his medical advisers, retired at the end of last term. In 1872 Mr. Impey went to Eton as a student, won a scholarship at King's College, Cambridge, in 1879, and five years later returned to Eton as a master, becoming a house master in 1889.

Miss Ethel Strudwick, of the Bedford College for Women, has been elected Head Mistress of the City of London School for Girls.

Mr. R. Kennard Davis, M.A. Oxon., of Marlborough College, has been appointed Head Master of Woodbridge School, Suffolk.

Mr. F. J. Welch, Head Master of Christ Church School, Chelsea, has been granted special leave of absence for six days on full pay, so that he may attend functions and carry out his duties as mayor of the borough.

The address of the Association of Head Mistresses is now 61 Great Ormond Street, W.C.

Applications for admission to the Montessori Training Course in Rome, beginning on February 23, should be made to Signorina Anna Fedeli, Via Principessa Clotilde 5, Rome.

Mr. Otto Beit has offered to the University of Cambridge the sum of £2,000, which is to be at the disposal of Prof. Breul and to be spent in the purchase of books and the proper fitting up of the library. He has also added securities to the value of £1,000, the annual income of which will be available for keeping the library up to date.

CORRESPONDENCE.

THE MAINTENANCE OF LONDON "EXTERNAL" DEGREES.

To the Editor of "The Educational Times."

Sir,—In your "Notes" you express a wish that the London Graduates' Association would withdraw their opposition to the Report of the Commission. If they were to do so they would be false to their trust; for it is because they are well aware that the fair promises of Mr. Pease are wholly fallacious, no doubt innocently so, that they feel it their duty to offer the most uncompromising opposition to any attempt to initiate legislation on the lines of the Report.

Supposing, as one must, that Mr. Pease is sincere when he says that he hopes the Scheme will "strengthen the External Degree," and that one of the principles of the Government's

action is to maintain facilities of access to University examinations for external students, the only possible conclusion is that he has not studied the Report and the Evidence, for the fundamental principle of the whole Report is utter lack of sympathy with external study and the intention to cramp it in every way until such time as it may be abolished.

"Access" of a sort is indeed granted to "externals" for the present, but even that is so hedged about by ingenious devices that private students will in many cases have either to abandon hope of a degree or be swept into the classrooms of privileged colleges.

The crux of the whole matter is not "access," but the question, "Does the Commissioners' Scheme leave or place the control of the External Degree courses and examinations in the hands of bodies sympathetic with external study and having the power to safeguard the interests, as heretofore, of external students?"

Alas! the answer is that while, as the Report itself says, the Act of 1898 entrusted the control of the External Side to the Graduates in Convocation as the best guardians of the high standard of the degrees, acting through their seventeen representatives on the Senate and the powerful External Council, the Report gives the external students no constituent place in the University, and forbids the existence of any body charged with maintaining their interests. Convocation is to have only one representative on the Senate, and the External Council is extinguished.

No, Sir, private study and research stink in the nostrils of the Commission and Lord Haldane, who in 1898 could not find encomiums too high for the Act "which would reconstitute the University, while preserving intact its examining Board."

Lord Haldane has lost his faith, and now wishes to found an "ideal" professorial University by destroying the constitution of a noble institution. He wants a blank sheet on which to write his new Gospel, at best a blurred one.

If the Government really wish to "strengthen the external degree" let them put into their Bill definite provisions for increasing the powers of Convocation, instead of entirely abolishing them; let them leave the control of the "External" Side in the capable hands that have done so well hitherto.

The small Senate and enormous "Court" are an absurdity, and their proposal is one of the many floutings given to the Senate of the University, whose only expression of opinion on the general question was one against this very arrangement. This must be given up, and either a powerful elective Council must be retained to control the External Side or the Professorial ideal University must start by itself, take a new name, and make a new reputation for itself.

The old and famous University of London sees no reason why it should commit political suicide to oblige those who wish to put a new body in its house.

A London Graduate.

December 16, 1913.

UNIVERSITY OF LONDON.

To the Editor of "The Educational Times."

Sir,—It is not often that the omission of the indefinite article implies so much as it does in the leader of the current number of your paper. You write, "Sir E. Durning-Lawrence has resigned office as Vice-President of the Graduates' Association," thereby implying that he was our one and only Vice-President. May I therefore be allowed to point out that Sir Edwin was *one* of our twenty-four Vice-Presidents, and that no other Vice-President has resigned for the last two or more years?—Yours very truly, A. S. E. Ackermann,

Hon. Secretary, Univ. Lond. Graduates' Association.

25 Victoria Street, Westminster, London, S.W.

December 11, 1913.

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THE SPIRIT OF ADVENTURE.

By Prof. BOMPAS SMITH.

ONE of the functions of educational theory is to give definite form to the principles which underlie successful practice, and it is the purpose of this paper to draw attention to one of the characteristic features of good schools and good teaching, which I shall call the spirit of adventure. This spirit appears to me to be present in the form room or the school when seriousness of purpose and readiness to endure hardship or fatigue are due rather to the boys' or girls' own initiative than to compulsion from without, and the atmosphere is one of zest and buoyancy, reminding us of the days

> When every morning brought a noble chance,
> And every chance brought out a noble knight.

In this spirit of adventure we may distinguish three characteristic features. There is in the first place the desire to achieve some experience, partly no doubt for the sake of its results, but mainly for the sake of the experience itself. Our interest in adventure is one form of what has been called our interest in achievement.*

A second element in the spirit of adventure is that it involves the desire to achieve an experience previously unknown, which has something absolutely new and unforeseen about it. It must be to some extent a unique experience,

* Mitchell, "Structure and Growth of Mind," page 95.

which has never been realized in quite the same shape before. If we knew beforehand what would happen, or the result at which we should arrive, the peculiar flavour of adventurousness would be gone. It is this characteristic of adventure which makes it the enemy of habit and routine. An adventure always involves a passage from the known to the unknown, from the familiar order of things to a situation of which the final upshot is in doubt. It is to this element of uncertainty that adventure owes much of its charm to strong and independent minds.

And thirdly the passage from the solid ground of the familiar to the uncertain sands of the unknown must be attended by some risk to our personal well-being. It implies a readiness to sacrifice the good things we have for the sake of some other good which we feel to be the greater, though we may not know precisely what it is. If I read a novel I may do so for the sake of the new experience the story gives me, and the fact that I cannot tell how the hero will be extricated from his deadly peril may be one of the chief sources of my interest; but reading a novel by the fire is no adventure. Adventure would begin if I left my fireside and went out into the world to encounter perils like the hero in the book, but with no certainty of a prosperous end.

I cannot attempt to trace the psychological origin of the love of adventure which is felt by all of us from time to time, but one or two points may be mentioned to give some idea of the relation of this sentiment to other mental tendencies and interests. In the first place it is clearly connected with the fundamental instinct of self-assertion. It seems to involve the feeling that we have exhausted the virtue of the ordinary surroundings of our daily life, and that we are ready and able to go forth and conquer new and unknown worlds. And like all forms of successful self-assertion the spirit of adventure is marked by a sense of power and buoyancy. The true adventurer goes gladly to meet the chances which may befall him. All great explorers have been men of serene and cheerful minds. We have this sense of power and gladness in Browning's description of Herakles setting out on his desperate adventure in the lower world:

> So, one look upward, as if Zeus might laugh
> Approval of his human progeny;
> One summons of the whole magnific frame,
> Each sinew to its service—up he caught,
> And over shoulder cast, the lion-shag,
> Let the club go—for had he not those hands?—
> And so went striding off, on that straight way
> Leads to Larissa and the suburb tomb.
> Gladness be with thee, Helper of our world!
> I think this is the authentic sign and seal
> Of Godship, that it ever waxes glad,
> And more glad, until gladness blossoms, bursts
> Into a rage to suffer for mankind.

Again, the spirit of adventure is also a form of courage, of the adoption of the more difficult but higher course at the expense of labour and pain. The adventurer runs risks, and this is why adventures are so interesting. Childe Roland saw and knew all those who before him had perished in the quest for the mysterious tower, yet his resolution was unmoved.

> I saw them and I knew them all. And yet
> Dauntless the slug-horn to my lips I set
> And blew
> —"Childe Roland to the Dark Tower came."

But while the spirit of adventure at its best is a part of our higher selves it may appear also in less desirable forms. In particular, if it is divorced from the solid background of our mental life, from our more permanent and comprehensive interests, it may degenerate into a tendency to run useless risks. In order that it may evoke our admiration the desire for adventure must be combined with steadiness of purpose and a careful weighing of all aspects of the situation. The most anxious preparation is a necessary preliminary to any polar expedition. And further, our willingness to encounter unknown dangers must be justified by a rational conviction that the experience to be achieved is really worthy. To seek adventures merely for our personal gain or pleasure is to degrade a noble impulse. Our adventure must be undertaken in the pursuit of some ideal or in the service of some cause. "There is no satisfaction," says Commander Percival in "The Twymans," "in adventuring merely for profit; you must serve something greater than yourself, even if it is only a King or a Church. But the strongest impulse, the impulse that we are all born with, is to serve God, or a woman, or the weaker in a fight."*

If we now turn to consider the part which should be played by the spirit of adventure in the life of boys or girls at school, we notice that this spirit is of special importance during the age of adolescence. It makes its appearance, indeed, in a child's early years. It inspires the child who leaves the safety of the chair it holds, to toddle unsupported to its mother's arms, or the boy when climbing his first tree. But it assumes a new and deeper form with the outburst of physical and mental energy, and the wider purposes and hopes, which mark the early teens. For the sake of brevity I shall therefore confine myself to a short discussion of its importance at this age.

One of the great problems in the education of adolescent boys and girls is how to help them to turn to good account the new vigour of mind and body which surges up within them. This new vigour must be brought under control or it will lead them into dangerous courses. But it must not simply be repressed. It must be given the fullest scope and guided into healthy channels. One of these channels is clearly play, a most valuable outlet for surplus energy, but another, I believe, is the experience of adventure. These two channels are, indeed, connected with each other. For both in playing games and in seeking adventures we have a sense of freedom, we take the "don't-have-to" attitude, and also break away in some degree from the known world of fact. We do this because both play and adventure are outlets for suplus energy which is not exhausted in coping with the insistent demands of our workaday lives. Moreover, games form one of the chief fields in which adventures may be sought. But the tendency to play is not identical with the spirit of adventure. Apart from other differences, play goes on in a world of partial make-believe. The real world is there, but only as a sort of background which throws into relief the imaginative conventions under which the game is carried on. In adventure, on the other hand, it is the real world that we explore. We seek to gain experience of a reality as yet not fully known. The risks we run must be real risks, involving possibilities of loss and hardship.†

Now this contact with reality which is characteristic of adventure is one of the great needs of the adolescent mind, which instinctively desires to discipline itself by wrestling with the hard world of facts. And in the same way all the features we have noted in our description of adventurous experience seem to answer to the requirements of this stage of mental growth, when the boy or girl is seeking modes of self-assertion, and is full of buoyancy and courage and of the desire for fresh experience as valuable in itself. But there are two points in particular to which I would briefly call attention. The first is the service rendered by adventure in breaking the bonds of convention and routine without involving any loss of mental balance. The achievement of adventures of the right kind will help to save the boy or girl from that violent reaction against restraint and law which is often a feature of the age we are considering. And, secondly, this age is the time for seeing visions, for realizing

* Henry Newbolt, "The Twymans," page 34. I wish to express my great indebtedness to Mr. Newbolt's writings.

† Of course the risks I run in playing, *e.g.*, an adventurous game of chess are not real in the usual sense. But in cases like these the spirit of adventure has been transferred to the world of make-believe, and the risks are accepted as real in that world.

the greatness and mystery of the world, for eager but vague planning for the future, for the self-elevation to some high ideal. And here, too, the spirit of adventure, if given healthy scope, may help to save these visions from degenerating into empty dreams.

It appears to me, therefore, that the encouragement of adventure should form a complement to that firm control and systematic discipline which we must give our boys and girls during these years of rapid change. Neither is enough without the other. Adventure must not be allowed to become aimless or ill-considered rashness, nor must our discipline be such as to leave no opening for adventure. For my present purpose I shall assume that the importance of order and organization and routine is fully recognized, so that no further stress need be laid upon this side of education. But there is a danger, especially in the case of efficient but unimaginative teachers, that the need for the constant provision of opportunities for adventure should be overlooked. In setting sums it is not always good to arrange them so that all may be well within the compass of the best members of the form. It is worth while sometimes to give adventurous spirits the chance of whetting their teeth on something really hard, at the risk of producing nothing that can be marked. Or again, in teaching science there are, as Sir Oliver Lodge has told us, two methods of approach. One is the orderly systematic method, with rigid proofs and often using mathematics. The other is suggestive rather than conclusive, opening up wide vistas of speculation, raising more questions than it can answer, but awakening in the form a sense of the insufficiency of their present knowledge and stimulating them to explore new fields of thought. In these and other ways it is possible to infuse a spirit of adventure into the teaching of all subjects, if only the teacher has the spirit in himself.

Even more necessary is it that the school's common life should provide occasions for adventurous experience. In proportion as it is well organized and inspired by strong traditions, school life tends to become limited by rules and customs. Its ideals are potent, but of narrow range. But here the spirit of adventure helps the individual boy or girl to break through the barriers of convention or routine. We feel that we lost something when our forefathers' school escapades were made impossible by the improvement of our discipline, and we must find a substitute for their opportunities for lawlessness. Thus we may give our boys and girls a chance of gaining first-hand experience of conditions of life unlike their own, or of engaging in enterprises outside the ordinary limits of school-life. The scout movement gives us many hints as to how this may be done. And if it be objected that these adventures are rather tame, I would answer in the words of Rostand: "The man of romance," he tells us, "is not he whose existence is diversified by the greatest possible number of extraordinary events; but he in whom the simplest occurrences produce the most live sensations."*

Lastly the spirit of adventure deserves to be fostered in our schools because it is a necessary element in all human life. For we are unable to rest satisfied with ourselves as finite beings in a finite world. Like Carlyle's shoeblack we have a soul quite other than our stomach, and must sacrifice our lower interests in the service of our ideals. This service is one of hardship and adventure, for we must leave the familiar house of conventional thought and traditional morality for the untrodden paths which lead to wider fields of truth and duty. You may call it obeying conscience or following God. But "in each case," says William Wallace, "you must realize that, whichever you do, you take your life in your hands, you enter on a grand enterprise, a search for the Holy Grail, which will bring you to strange lands and perilous seas. For you cannot say interpreting 'Thus far and no further, merely according to the bond and duty!' In following God, you follow by what has been, what is ruled and accomplished, but you follow after what is not yet."*

* Quoted in "The Twymans," page vi.

TWO SKETCHES.

THE APPRECIATIVE PARENT.

Some little time ago I wrote a book in parts of which parents of boys at public schools were represented in not wholly flattering colours. I have since met a few parents who read my book. They all liked it very much, but playfully rebuked me because I was hard on parents, and they assured me that they themselves did not belong to any of the kinds described in my book.

But at last I did meet one parent who told me that my portraits were of photographic accuracy. Before I go on to copy down her letter—for her appreciation took the form of a letter—I shall have to inform the reader that one study in my book was of a very conceited gentleman, deputy-lieutenant of his county, who, hearing that his son was being taught French by an Englishman, wrote a letter to the Head Master and requested him to see to it that the boy was at once provided with a native-born Frenchman, in order that the purity of his accent might be preserved. The Head Master naturally refused. The Deputy-Lieutenant threatened to remove his boy. Head Master obdurate. Boy removed. Maugre the Deputy-Lieutenant the school still survives—though I remark that the Head Master shortly afterwards suffered a sharp attack of neuritis. Now I will proceed to copy out Mrs. Martow's letter.

Dear Mr. D ——,—I had been waiting for some weeks until our library here should consent to send me a copy of your book, of which I read a most laudatory review in the *Gaily Sillygraph*. For three weeks I had to curb my impatience, and when last night the book arrived I could not close my eyes until I had devoured it from the first page to the last. I think it is most *clever* in every way and so very amusing. I like especially the sketch entitled ——.† And I think that what you say about parents is very true. So many parents seem to think that their boys have sole claim on the attention and care of those in authority. No wonder schoolmasters are irritated!—Yours very sincerely, Amelia Martow.

P.S.—Your sketch, "The Deputy-Lieutenant," made me laugh because it reminded me of a matter in which I took part ten or twelve years ago at Luttlesham. My two girls had learnt their French at Dinan. In fact, my husband and I had been at some expense to go out there and take a house for a year in order to be near them. When we got back to Luttlesham I sent them both to the High School there. After they had been there a week I learnt to my *horror* that they were in a French class which was being conducted by an *English* schoolmistress.—So I at once wrote to the Head Mistress asking her if anything could be done. She answered that she could not see her way to making alterations. So then I saw I must act more vigorously. I got up a petition which I took round to over forty parents of girls in the town, and badgered them incessantly till they consented to sign it. Then I sent the petition in to the Head Mistress. A week later that English mistress disappeared and was replaced by a French lady.—A. M.

On the whole I am disposed to think that Mrs. Martow scored off me rather heavily in that letter.

EAVESDROPPING.

Not all the "studies" or "sketches" (A. C. Benson calls his efforts *aquarelles* I think) that I have written were

* Lectures, page 210.

† Mrs. Martow left a blank here to fill in later. Evidently the book was not at hand while she was writing. She forgot to fill in. So I still do not know which was the best sketch in my book.

included in my book. One indeed appeared in the columns of a big penny daily, and brought me nearer to an adventure than anything else I have ever written. Again I have to give the gist of the thing to make the rest of this narrative intelligible. It was a sketch from life of a lesson in Latin Prose—an "*aquarelle* from the portfolio" of my own personal experience at school. Names, of course, were changed, and a few details. The master in charge of the class was represented as a heartless despot — and that indeed is what we boys thought of him. It is, of course, unnecessary to say that, like most boyish verdicts on character, ours was misleading and untrue. However, there he was roaring at us, pounding the desk with his fist and striking terror into our souls.

A few days—I think the next day—after the appearance of this *aquarelle*, I remembered with dismay that I was due to an Old Boys' Dinner in town where I should most almost certainly meet old T——, the Latin Prose despot himself. May I explain that T—— is an old Rugby International and six foot three in his socks? Well, one must have the courage of one's articles, but I will not deny that it was with quite unmixed alarm that at the Café M—— the first thing I beheld was the light gleaming on the bald pate of the Titanic T——. I circled round the edges of the crowd and hoped to avoid him. I succeeded there, but at dinner I found myself seated right in the angle formed by two tables. On the other arm of the angle was T——. We were almost back to back. I just managed by a miracle to escape the observation of T—— when we were taking our seats, but I noticed that on his left was a man who fifteen years ago had been in the same form with me, learning Latin Prose under T——.

At the fish course, as the flood of noise floated uppermost, these words were addressed to T—— by his neighbour:

"Did you see D.'s article in the —— yesterday?"

"The one called Latin Prose?" said T——.

"Yes."

"Oh yes; I saw that all right. Good, wasn't it?"

I began to feel my blood circulating again, and T—— continued:

"But he ought to be careful. He might easily offend some one, one of these days."

The thermometer sank again.

"Take that very article. Of course I laughed. I saw at once who was meant."

"Yes, yes; oh well, of course, it was exaggerated."

"Oh, hardly so. No, I should say it was rather a faithful picture."

The other simply made an inarticulate noise. T—— continued: "Oh, no one who'd been at R—— could possibly fail to see who the master in that sketch is meant to be. And if poor old Marlow himself read that sketch he couldn't help recognizing himself."

I seized my glass hastily and emptied it. Marlow! I'd never thought of Marlow.

"What are you laughing at?" asked my neighbour.

"I'm thinking about Marlow," said I. And while my neighbour began to tell me much about Marlow which I knew already, I paid attention to the conversation behind me. T—— was saying:

"But one of these days D—— will be 'sketching' some one who can hit back, and he'll not do himself any good. He's a schoolmaster, isn't he? Then let him stick to his job."

F. R. G. D.

MEMORIES OF THE TEACHERS' REGISTRATION MOVEMENT.

At this time, when the efforts for the establishment of a Teachers' Register have at length been crowned with success, it seems not unsuitable to recall the labours of the pioneers of the movement. It has been my good fortune, in the course of the last twenty years, to be thrown into comradeship with some of those who bore a leading part in the endeavour to stimulate a stronger professional feeling among teachers, and I venture to make a contribution to the more personal side of this branch of our recent educational history, in the hope that others may supplement what I write by reminiscences of their own.

Two important bodies—the College of Preceptors and the Teachers' Guild—laboured to form public opinion among teachers in favour of a register. Among those who were prominent and influential on behalf of the College of Preceptors, four figures stand out vividly in my memories of the past.

Mr. H. W. Eve, at one time Fellow of Trinity College, Cambridge, and afterwards Master of the Modern Side at Wellington College and Head Master of University College School, brought to the service of secondary education in England, and not least to that of private secondary-school teachers, an acute mind, staunch public spirit, and the prestige of scholarly distinction. In his evidence before the Secondary Education Commission in 1894, Mr. Eve said: "It is very likely that new methods and new ideas in education will come rather through private than through public schools." He therefore pleaded for the recognition of private teachers and private schools in a national system of education. Furthermore, he urged upon the Commissioners the importance of the educational profession becoming a distinct profession in itself. Among those public-school masters who have taken a broad and statesmanlike view of the value of private initiative in national education, the name of Mr. H. W. Eve should be mentioned with profound respect.

The two other names which recall associations of strenuous advocacy and prolonged effort in behalf of private-scohol teachers are those of Mr. Edward Ewin Pinches, for a long time Treasurer of the College of Preceptors, and Mr. Charles Robert Hodgson, for many years its Secretary. Mr. Pinches was one of the most experienced examiners in the country. He was shrewd, far-seeing, concise. Mr. Hodgson was ideally fitted for the onerous post which he filled. Always cheerful, and (in spite of many interruptions) invariably considerate and courteous, he combined the sagacity of age with the elasticity of youth. In the evidence which they jointly tendered to Mr. Bryce's Commission, Mr. Pinches and Mr. Hodgson argued that in any scheme for the improvement of secondary education the passing of a Bill for the registration of qualified teachers in secondary schools, public and private, and the eventual exclusion of unregistered persons from all schools desiring public recognition, was of primary importance. On behalf of the College of Preceptors, they proceeded to press the view that a Registration Bill should precede any measure for the general promotion of secondary education.

The fourth name which comes into my mind, with many associations of genial comradeship, is that of Dr. Wormell. The vigour of his personality, his command of humorous and trenchant speech, the range and accuracy of his knowledge had made him a prominent figure in English secondary education and among English head masters long before he and I met at the time of the Oxford Conference on Secondary Education. At that time he impressed us all by his knowledge of the educational needs of an important section of the community and by the *bonhomie* with which he stated his convictions. Shortly afterwards he was appointed a member of the Royal Commission on Secondary Education, and it was in this capacity that I came to know him well. A Royal

Commission is rather like an Antarctic expedition. A small body of people, entrusted with a common purpose, but not previously intimately known to one another, set out on a voyage of exploration and discovery. They bring to the work different aptitudes, a variety of temperaments, diverse experience. They push off from the shore, as it were, at their first meeting, and, as they proceed with their task, are thrown into relations with one another, which become more intimate from week to week. Much depends on the captain—in our case a man whose intellectual eminence and long public service entitled him to our profound respect. Not less of the real welfare of the expedition depends (as in the case of captain Scott's) upon the influence of two or three quiet members of the party with a strong disposition to considerate friendliness and peace.

We who served on the Bryce Commission were fortunate in having among our colleagues a singular variety of interesting and unself-centred personalities. Though it is nearly twenty years since we sat week by week round that widespreading horseshoe table, in the large Gothic room which opens out of Westminster Hall, up the flight of stairs on your right as you enter from Palace Yard, the picture of our company is still vivid in my thoughts: Mr. Bryce at the head of the table, the captain of the ship, sitting low in his chair, with keen but benignant face, following every shade of meaning in a complicated argument and consummately skilful in the affability with which he put a witness at his ease and, in leading him through the points of his evidence, imparted to the give-and-take of question and answer the pleasure of a courteous conversation.

On Mr. Bryce's Commission Dr. Wormell had an important and exceptional function. He (more than any of us) knew the work of the private secondary schools. His intimacy with the business of the College of Preceptors gave to his outlook and judgment a special turn, which was of value to all of us on more than one critical point in our deliberations. To say that he had the esteem of all his colleagues would be an understatement of the facts. He made us his friends. And it must be a satisfaction to him to feel that some of the passages in the Report of the Commission might never have been written, and would certainly not have expressed our united judgment, if his experience had not been one factor in our discussions. The paragraph in the unanimous report of the Royal Commission on Secondary Education, to which I would direct the notice of the reader, will be found on page 190 of Vol. I of the Report:—

> The body of teachers must necessarily occupy a somewhat anomalous position in the economy of national life. The service which they render is one over which the state must, in self-defence, retain effective oversight; the condition of teaching and the conduct of education cannot be left to private enterprise alone. Nor, on the other hand, do the teachers stand in the same relation to Government as does the Civil Service. Education is a thing too intimately concerned with individual preference and private life for it to be desirable to throw the whole of it under Government control. It needs organization, but it would be destroyed by uniformity; it is stimulated by inspection, but it could be crushed by a code. In the public service, where the chief object is administrative efficiency, the individual officer is necessarily subordinate: in education, where a chief object is the discovery of more perfect methods of teaching, the individual teacher must be left comparatively free. Every good teacher is a discoverer, and, in order to make discoveries, he must have liberty of experiment.

Alongside of the College of Preceptors, the Teachers' Guild rendered services of historical importance to the movement for the professional unity among teachers, of which the Registration Council is a symbol and a promise. Space forbids me, as in the earlier part of this article, to mention many names which will be in the thoughts of all to whom the events of twenty years ago are familiar. I should have liked to speak of the work of Mr. Sonnenschein, in whom his friends recognized a genius akin to that of Pestalozzi; of that of Mr. Ebenezer Cooke, who has passed away during the last fortnight, a man of kindling and stimulating power, passionate in his devotion to educational freedom, profound in his insight into some aspects of the problem of teaching; and also of that of Mr. Courthope Bowen, an untiring pioneer in the professional training of teachers—a man who, in spite of heavy discouragement, never lost faith in the great cause to which he gave his life.

But, besides these, I can only speak of two men, one no longer with us, one happily still able to exert a strong influence in educational affairs—Mr. H. B. Garrod and Mr. Francis Storr. Mr. Garrod, to whom the quiet life of a profound scholar had the strongest attraction, gave himself with complete unselfishness to the ill rewarded tasks of educational organization. To him the dusty details of administrative discussion were irradiated by the light of the principles which lay behind them. He set an example of steadiness of purpose, patient courage, cheerful perseverance. And what he cared for most was the spiritual unity of the teaching profession, a profession which has sacred functions and in which the humblest, most self-effacing member may render the highest service to the State and to the future.

For Mr. Storr his friends have an affection which springs not only from the charm of his society, but from the fact that to him many of them owe a great part of their knowledge of what is going forward in English education. Mr. Storr has been brave in his advocacy of an ideal cause. To him the teaching profession is one. The gratitude of those who believe in the oneness of the teacher's calling is fresh and strong.

M. E. Sadler.

THE COLLEGE OF PRECEPTORS.

MEETING OF THE COUNCIL.

A meeting of the Council was held at the College, Bloomsbury Square, W.C., on November 26. Present: Sir Philip Magnus, President, in the chair; Prof. John Adams, Rev. J. O. Bevan, Mr. Brown, Mr. Butler, Mr. Cholmeley, Miss Crookshank, Miss Dawes, Mrs. Felkin, Mr. Hawe, Mr. Holland, Miss Lawford, Rev. R. Lee, Mr. Longsdon, Mr. Millar Inglis, Mr. Pendlebury, Mr. Rushbrooke, Rev. C. J. Smith, Mr. Somerville, Mr. Starbuck, Rev. Canon Swallow, Mr. Vincent, Mr. White, and Mr. Wilson.

The Secretary submitted a Report of the proceedings at the last Half-yearly General Meeting of the Members of the College, and it was referred to the Finance Committee to consider a suggestion made by members of the College that an account of the proceedings of the Bodies to which the College sends representatives should be prepared, and either be submitted at the first Ordinary General Meeting of the year or be included in the College Calendar.

Diplomas were granted to the following candidates, who had satisfied the prescribed conditions: *Licentiateship*, Mr. Charles James August Oppermann and Mr. William John Jenkin; *Associateship*, Mr. William Bell Lee.

The Secretary reported (*a*) that the Practical Examination for Certificates of Ability to Teach had been held on October 28; (*b*) that the total number of entries for the Certificate and Lower Forms Examinations was 4,539; and (*c*) that the Conditions of Admission to the new Teachers' Register and an Introductory Memorandum had been issued by the Teachers' Registration Council on November 21.

A grant of £2. 2s. from the College Benevolent Fund was made to a member of the College.

Prof. John Adams was appointed to deliver the next Course of Twelve Lectures on Psychology.

Mr J. F. P. Rawlinson, LL.M., K.C., M.P., was elected a Member of the Council.

The following persons were elected Members of the College:—

Rev. G. B. Charles, B.A., A.C.P., Paddock Wood Vicarage, Kent.
Mr. A. Cook, A.C.P., 30 Cleveland Park Crescent, Walthamstow, N.E.
Mr. A. D. Hardie, M.A., Linton House School, Holland Park Avenue, W.
Mr. S. V. Pendse, B.A., Baroda, India.

The following books had been presented to the Library since the last meeting of the Council:—

By the City and Guilds of London Institute.—Report of the Department of Technology, 1912–13
By G. Bell & Sons.—Leathes's What is Education?
By A. & C. Black.—Black's Sentinel Readers, Books I and II.
By Blackie & Son.—Heath's German Strong Verbs and Irregular Weak Verbs; Moncrieff's Heroines of European History; Park's Thouriet's L'Oncle Scipion et sa Promesse; Scott and Jones's Shorter Second Latin Course.

By HACHETTE & Co.—Marshall and Schaap's Manual of English for Foreign Students; Schweitzer, Simonnot, and Braunholtz's Méthode Directe de Français, Première Année.
By G. HARRAP & Co.—Palser's New School Hymnal.
By LONGMANS, GREEN, & Co.—Ritchie's First Steps in English Parsing, Practical English Grammar, First Steps in Greek, Easy Greek Grammar Papers, First Steps in Latin, Second Steps in Latin, Latin Grammar Papers, Latin Clause Construction, Easy Latin Passages for Translation, Imitative Exercises, Easy Continuous Latin Prose, Exercises in Latin Prose Composition, Fabulae Faciles, First Latin Verse Book, First Steps in Caesar, Preparatory Caesar, Easy Ovid, and Discernenda; Ritchie and Moore's Practical Greek Method.
By MACMILLAN & Co.—Stenhouse's First Book of Nature Study.
By the OXFORD UNIVERSITY PRESS.—Aydelotte's College English; Colles's The Growth of Music, Part II; Davis's Outlines of European History; Gordon's Shakespeare's Richard II; Guedalla's Macaulay's Essays on Pitt and Chatham; Hamilton's Outlines of Greek and Roman History; Heath's Elementary Statics; Lowe's Anecdotes from Pliny's Letters; Macaulay's War of the Succession in Spain; Marwick's Eliot's Silas Marner; Mayne's Kingsley's Heroes; Rogers's Outlines of Modern History; Smith's The Tree of Knowledge; Tancock's Elements of Descriptive Astronomy.
By the UNIVERSITY TUTORIAL PRESS.—Penn's Caesar's Gallic War, Book VI.
Calendar of Aberdeen University.
Calendar of Birmingham University.
Calendar of King's College, London.
Calendar of University College, Nottingham.
Incorporated Accountants' Year Book.

CO-OPERATION BETWEEN THE SCHOOL AND THE EMPLOYER.*

By CLOUDESLEY BRERETON, M.A., L. ès L., Officier de l'Instruction Publique, &c.

THE ALOOFNESS OF EDUCATION.

It has been said of one of our ancient Universities that it behaves as if there were no world to belong to, as if, in fact, the pursuit of knowledge were the end-all and be-all of education, and its application a matter of minor importance. And, indeed, until recently education in England has busied itself far too little with the problems of the workaday world. It has so much concerned itself with the training of the *citizen*, it has forgotten that it should also concern itself with the education of the producer, the *worker*. But if man cannot live by bread alone, he cannot live without it either. A complete system of education must deal not merely with preparation for life, but also with preparation for livelihood.

THE REASON WHY.

Now this cardinal truth has largely been obscured in the past by the fact that the older Universities, who have been the bell-wethers in our educational ideals, have, to a certain extent, been devoting their energies to the pursuit of knowledge for its own sake and to the enlargement of its boundaries. But it has been still more obscured by the fact that, unlike the foreign Universities, Oxford and Cambridge have been largely engaged in the past in catering for the leisured classes, who, as the ruling class of England, have found their life work and their livelihood in running the local and central government of this country, or in ruling over our colonies, and to a still greater extent in governing and administering the subject races within the Empire. Now the requisite technique for such work has, at least until recently, consisted not so much in book knowledge as in practical knowledge of mankind, in what I would call "mancraft," the art, in fact, of handling men, an art which they have learnt in the public schools and the Universities, through daily contact with their fellows.

It is true that the Universities have always prepared a large number of divines, doctors, and lawyers, but these only formed a minority of their students, though in so far as the studies of these candidates for the professions were concerned, the Universities were to all intents and purposes technological colleges in Theology, Medicine, and the Law. Such studies, in fact, have a bread-and-butter side which even the most violent exponents of learning for the sake of learning cannot explain away.

ISOLATION ON THE WANE.

Happily, this state of splendid isolation is slowly passing away, and in the older, and to a far greater extent in the younger, Universities we find training in technique provided in all sorts of snbjects, not merely in law, medicine, and theology, but also in engineering, applied chemistry, the textile industries, gas and electricity, and certain branches of commerce.

THE WRONG AND THE RIGHT WAY OF ORGANIZING THE SCHOOL WORK.

Yet it must be admitted that the practice still prevails in some qnarters of teaching certain subjects on the assumption that they possess some special virtue in themselves, as for instance, compulsory Greek. Pink pills for pale people is a pretty shallow theory, but this is no better than a theory of pink pills for the million. We shall never solve the question of curriculum that way, and we shall only do so when we reverse the process and ask first what will be the probable career of the pupil, and then we shall be able to see what subjects are most suitable for his training. Then we should see that Greek is or should be living bread to the budding theologian, but a mere stumbling-block to the youth who enters commerce at sixteen. The elementary school is already moving in the direction of first diagnosing the pupils' future needs and then prescribing for him, and even the older Universities and the public schools are showing signs of being affected by similar influences.

TWOFOLD TRAINING OF THE CITIZEN.

On the other hand, the more thoughtful among educationists are seeing it is not enough for us to develop in our pupils the instincts of good citizenship if we neglect to prepare them to take their share in the world's work. Else we fall into the error of the lady who once wrote to a mistress of my acquaintance that she could unreservedly recommend two girls for the skilled posts of cook and parlourmaid, as they had just been prepared for confirmation by her brother. There was no doubt about the confirmation, for they proved the most confirmed incapables. The community demands that we should turn out pupils who have not merely sound instincts, but sound aptitudes; who have not merely tastes, but capabilities, potential producers in fact. Faith without works succeeds neither in this world nor in the next. We must, of course, train our pupils to be honest, reliable, self-reliant. No amount of 'cuteness can replace these qualities; they are the basis and corner-stone of all business, except the get-rich-quick variety. But we must also give onr pupils, if possible, some knowledge underlying, and preparatory to some group of trades and callings, some technical skill, some technique in fact that they can put on the market. In a word, we must train them for livelihood.

But how are we to train them for livelihood?

WHERE THE BUSINESS WORLD COMES IN.

Surely it is obvions we educationists can no longer be content with turning out what we fancy to be a good scholastic article; we must follow up our product to see how he fares when he offers his services in the labour market, and if the present watch we have just turned out have much ado to find a job, we must be ready and willing to revise our methods of training and devise some adequate scheme for placing out the school products, and this we can only do if we get into far closer touch than formerly with the business world. In a word, people are beginning to see that national education is not merely a problem in the production of citizen-workers, but also in their distribution. The schoolmaster of the past went on manufacturing, like certain English manufacturers, what he fancied was a good article, irrespective of what was really in demand; to-day he is gradually learning that the placing out of his pupils is a matter of ever-growing importance, and that the placing out depends in part on his producing a pupil who has an economic value in the business world.

THE INTEREST OF THE BUSINESS WORLD.

Happily the business world is as vitally interested in the production of pupils of the right type as the educationist is or ought to be. The reasons for such an interest are mainly the decay of apprenticeship; the increased foreign competition in the home market; the growing necessity of finding fresh markets; the need of officering the numerous enterprises created abroad by British capital; the invasion by science of industry; the corresponding need for more trained intelligence; the growth

* This Paper was read at the Conference of Employers of Labour at the National Gas Congress and Exhibition on Tuesday, October 28, 1913.

and expansion of mammoth businesses necessarily needing a regular hierarchy of well-educated, thoroughly well equipped heads of departments.

The Business Man also a Citizen.

It is true the average business man is not in business for his health, but to use Prof. Smithell's phase, I do not believe in the turpitude of the industrial world, I do not believe that the bulk of business men are interested in nothing else than buying in the cheapest market and selling in the dearest. Otherwise there would be a vast deal more sweating than there is. I believe that the business man of to-day is not merely interested in his business, but also, to a certain extent, in the welfare and well-being of his employés, and that alike from a personal and a national point of view. As a citizen of this country, with often a large stake in it, he cannot but see the folly of trying to get the last ounce out of the present generation to the detriment of the physique of the generation to come, both from business and especially from national reasons.

Moreover, the increasing federation which has taken place in the different trades and industries among employers has, I believe, considerable potentialities for good in it, in the way of creating a sort of Guild spirit within the federation and thereby keeping in check the less satisfactory employer. The bad employer's sins of omission and commission are infallibly debited to the class of employers as a whole. They have to shoulder all the odium he provokes. In the moral world, every whit as much as in the economic, the good, in the long run, have to pay for the bad.

The "Rapprochement" between the School and the Business World.

Let us now take a few instances of the *rapprochement* which has taken place between education and the business world, and which I for one believe will be much closer in the future. To save time, no mention is made here of the vast sums given by the business world collectively or individually to the cause of technical education. What will be given here are a few typical instances of what has actually been done by various firms up and down the country. For many of these one is indebted to the editor of that very live paper named *Education* which devotes particular attention to recording new departures and experiments. Considering the value of these experiments, it might be worth the Board of Education adopting a suggestion contained in a recent letter by Mrs. Cloudesley Brereton on "Vocational Education," in the Educational Supplement of the *Times* for July, in which the Board were asked to collect and publish what was being done in the matter up and down the country. One ventures to think such a record would be of the greatest value.

A.—Payment or Repayment of Fees, Prizes.

In London, Leeds, Edinburgh, Sheffield (especially as far as Messrs. Mappin & Webb are concerned), and also in other large towns, certain employers and business firms pay the fees of those of their workpeople who attend evening classes or refund them (and that is particularly the practice at Liverpool) to those students who attend at least 75 per cent. of the possible hours of instruction, the attendance cards being in many cases checked at definite intervals by the firm concerned. Other employers go still further and, like the White Star Line, award prizes to their employés for attendance and for success at the examinations held at the end of the session.

B.—Compulsory or Subsidized Attendance at Classes.—(*a*) London.

In London especially various public bodies require certain categories of their employés to attend classes. This is done, for instance, by the London County Council in respect to its messengers and apprentices. The Admiralty, War Office, Post Office, and Patent Office also compel their messengers to continue their education. Certain private firms reduce the working hours of their junior employés and render attendance at definite classes obligatory. Certain engineering firms send their apprentices for a whole day a week to technical institutes, and a number of printing firms allow their apprentices to leave early on one day a week to attend special afternoon classes. Other firms allow classes to be conducted by the Council within the firm's premises with the help and co-operation of the firm. In most of these instances the time off is allowed without loss of wages. I will only mention here *pro forma* the singularly complete experiment of the Gas Light and Coke Company, as it is being fully dealt with by another speaker.

(*b*) The Provinces.

Similar practices obtain in the provinces. Some firms, as Mr. Kersey has pointed out, allow apprentices to go to work at 9 a.m. instead of 6 a.m. after attendance at evening class the night before. Others allow them to leave at 4 p.m. instead of 5.30 on class evenings. Others, again, send their employés and apprentices for instruction on two or three half days a week with additional evening instruction over a period of two years, as in the case of H.M. Dockyards; or, as in the case of Sir William Mather's firm, make it a condition of employment that all boys should attend continuation schools for at least three evenings a week during eight months in the year; but this, I believe, has recently landed the firm in some difficulty. Sometimes the time off only amounts to one afternoon a week, as at Liverpool, where the technical school is attended by apprentices and workmen in engineering, the metal trades, and in painting and decoration. The Liverpool Gas Company allow their meter-makers to attend on these terms for two years, and other firms allow their workmen to attend till eighteen and even twenty-one.

Other Forms of Co-operation—Meetings on the Works—Advisory Committees.

Both at Liverpool and Edinburgh much has been done to interest employer and employés in continuative education by mass meetings being held in some works, like those of the Cunard Company, such meetings often taking place in work hours. At Edinburgh a further step has been taken by the appointment of a regular apprentice-training committee for the registration of apprenticeship and the oversight of their trade and educational work, and this committee has recently appointed sub-committees for the different trades. Somewhat similar trade committees, as I will indicate more fully later, are already at work in London. Wherever after-career committees and juvenile employment committees have been established, employers have as a rule taken an interest in their formation and their working. Here, in London, the County Council, who have just reorganized their evening school system, are making a great point of the need of enlisting the interest and co-operation of the employer. In the Educational Committee's report, subsequently adopted by the Council, it was proposed to appoint, in place of "managers" as now constituted, advisory committees, comprising, among other representatives, persons connected with the management of trades, industries, and business houses, the presence of such persons being described as "of the greatest importance." Such advisory committees are to meet once or twice a year to consider the aims and results of the institute, discuss the annual report, and individually visit the school according to a rota. Employers are to be brought into closest relationship with the evening institutes, both to encourage their employés, and directly to criticize the subjects studied. Each committee as a whole is to act as a link between the day school, juvenile labour exchange, the place of business, the home, and the institute. It is too early to indicate results, but the program at least is catholic in its comprehensiveness. Again, at the official opening of the newly reorganized evening schools and institutes, among the 250 important persons who were invited to deliver addresses on this occasion, a good proportion were prominent persons in the business world.

Two Important Schemes—Sunderland and Bournville.

But probably the two most extensive and complete examples of co-operation between school and employers are afforded by the sandwich system of training engineering apprentices, which originated at Sunderland, and has been adopted elsewhere, and the so-called Bournville scheme, inaugurated by Messrs. Cadbury. The former deals entirely with skilled labour, the latter rather with unskilled labour. The former, again, is practically a method of day-time instruction, while in the latter the great bulk of the instruction is given in the afternoon or the evening.

The Sunderland Scheme.

The Sunderland system was established in 1903 for the training of apprentices in shipbuilding, marine engineering, electrical engineering, &c., and was the outcome of an agreement between the Association of Shipbuilders and Engineers of Sunderland and district, and the representatives of the technical college. For simplicity I quote from the original form, though there have been subsequently no substantial alterations. It embraced some twenty-five firms, one of which, Messrs. Doxford, has twice stood at the head of the world's shipbuilding firms for total output of annual tonnage, and in one year exceeded the total shipbuilding production of Germany. The magnitude, therefore, of the interests concerned is obvious. The agreement laid down that the essential principle of the system for training engineering apprentices consisted in a combination of practical training in the firms workshops and drawing offices and a scientific training in the technical college. The two intermediate years between the apprentices leaving school and taking the course were to be spent in the workshops with attendance at evening schools in matters of preliminary engineering subjects. Each year a number, not exceeding twenty-five, of Free Apprenticeship Studentships were to be offered for competition among shipbuilding and engineering apprentices. During the three or four years following their selection, the successful apprentices were to be allowed leave of absence to attend the technical college classes from October 1 till March 31 free, the time spent in college to count towards their apprenticeship, the rate of advances in wages to be the same as if they were in the shops, and during the summer months special facilities to be given for traversing all the various stages of work. At the end of the student's apprenticeship a college diploma was to be given to those who had satisfactorily completed the course of study and their apprenticeship, such a certificate being signed by the Association of Shipbuilders and Engineers of the district and by the technical college authorities. It was also agreed that notices of the examination should be posted up in the workshops of the firms concerned. The scheme has now been in existence for ten years. It has worked satisfactorily, and it has certainly been copied consciously or unconsciously in several places, at least in one case to one's own knowledge in London. Perhaps one may mention *honoris causa* the two chief movers in the inception of the scheme—the late Mr. Roche, Chairman of the Sunderland Technical College; its present Chairman, Dr. Gordon Bell; and its former Principal, Mr. Benchara Branford.

The Bournville Scheme.

The Bournville scheme is less easy to describe. Its ramifications are so wide-spreading and comprehensive that it is difficult to give here more than the barest outlines of the scheme. It deals, as we have said, not merely with skilled but unskilled labour, and attempts to improve the physique and intelligence as well as the skill of its employés. It is closely interwoven with the factory organization, and also co-operates very closely with the local evening schools. It involves some two thousand people, and has at its head a regular paid Education Secretary with five people under him. Much juvenile labour is employed by the firm. Children who enter must have passed the sixth standard and come through the local Labour Bureau. All are allocated a physical training course and sent for the first two years to general classes at an evening school. Increases are given only to young employés who produce satisfactory reports, bonuses are given to the best students of the year, and fees returned to those making 95 per cent. Weekly returns of absentees are made by the schools to the works. At sixteen boys compete for vacancies in the skilled trades subsidiary to the main business of the firm. A certain number are taken on as apprentices, proper supervision is made for their education both in general subjects and in systematized workshop training either at the works or at adjacent Technical Institutes. Annual examinations are conducted on the work by an examiner often appointed by the trade union concerned. Prizes and promotion depend largely on the results.

Classes are held for the actual teaching of operatives in the unskilled subjects. The girls get a three or four years' course in English and household arts, and as 90 per cent. marry before twenty-five, the problem of turning them into skilled employés hardly exists, especially as the bulk of the remainder obtain superior posts as forewomen, &c.

Classes are now compulsory for all up to eighteen, while for those in the offices the age is nineteen and for apprentices twenty-one. The experiment is in its seventh year, and the mere return in extra health and strength and increased skill and intelligence is believed by the firm to be well worth the outlay incurred. Thus, in cardboard box making by hand, which is one of the sweated trades, the firm pays a wage above the minimum laid down by the trade board, and can still produce cheaper boxes than can be bought elsewhere in Birmingham.

The Neglected Woman Worker.

Bournville is particularly noteworthy from the fact that it supplies one of the few instances in which the interest of the employer has been extended to the woman workers. Generally speaking most of the co-operation afforded so far by firms and employers has been confined to employés of the masculine sex. All the more significant therefore is the recent offer of Lady Boot to provide fifty University women with the requisite business training in commerce and to find them suitable berths afterwards. Judging by the number of responses she has received (well over two hundred) she has tapped a new stratum of recruitment. Moreover, Messrs. Harrods have promptly done her the honour of copying her by offering similar posts and training to twelve selected college girls.

(*To be continued.*)

REVIEWS.

Secondary Education in England. By R. F. Cholmeley. (2s. 6d. Smith, Elder.)

Mr. Cholmeley's sub-title is "An Appeal to the People." This well describes the book. He asks the nation to consider what is to be done with the children at and after the age of fourteen. To many people the term secondary education smacks of social privilege. The democratic rate-payer thinks it right that what he calls "the people's children" should be educated at the public cost. But in saying this he seems to be assuming that no education is needed for young people beyond the age at which they leave the public schools for young children. If he is further pressed, he is inclined to say that the middle classes can pay for the education of their children if they want it. Mr. Cholmeley sweeps away this foolish social tradition with skilful and clear reasoning. He wants the nation to make up its mind if it is wise that children should work in mills at the age of twelve; or that other children should be let loose into offices and shops at the age of fourteen. We can afford to educate the children of this country, and shall do so as soon as we are convinced that education is worth having. The initial difficulty is to bring about this conviction. It is nearly a year since Lord Haldane made his famous appeal to the country to provide a system of national education. The Government will act if the people want it. But we are not yet convinced, as a nation, that we want it. The rate-payer grumbles, and the tax-payer is not exactly enthusiastic. The task that Mr. Cholmeley has set himself is to convince the "man in the street" that we must have a national system—and he explains what is meant by a national system—that it is worth paying for, and that we can afford it. This task he carries out with lucidity of thought, wealth of information, and in a style that makes reading a pleasure. Throughout Mr. Cholmeley preserves his good temper, and even where he is most convinced that his message is a vital one, he shows a humorous appreciation of his adversary's attitude towards himself. The main constructive policy in the book is an appeal that grants should be in proportion to the main expense, *i.e.* salaries, and not in proportion to

the number of pupils. His reasons are cogent, and in our opinion incontrovertible. He deals in detail with Mrs. Bryant's objections to this method of assessment. No one is convinced by argument: otherwise we are sure that Mrs. Bryant has only to read this book in order to recant. Many of the chapters have already appeared in our columns, and many of the points of policy have been dealt with in our leading articles. It is convenient to have the issue in volume form. There are some additions to the original series of articles, and in an appendix will be found extracts from the speeches of Lord Haldane, Lord Crewe, and Mr. Pease.

All Men are Ghosts. By L. P. Jacks, M.A. (5s. Williams & Norgate.)

This book, although not obviously educational, certainly deserves a notice in an educational paper, for it affords an excellent example of an admirable didactic method. The casual reader feels like a wayfaring bee attracted by a matted furze bush whose sweetest blooms turn out to be hidden beneath the spikes. An elegant and easy style draws him on, as it were, with an alluring scent, but he cannot reach the honey without tearing his brains to shreds with hard thought. It requires, indeed, a master both in the literary and philosophical arts, like Prof. Jacks, to present to us difficult metaphysical problems in the garb of short stories; and yet we are not treated like Kindergarten children, nor is the moral contained in a concluding paragraph to be skipped by all save the conscientious.

The reality of spiritual phenomena is discussed by means of an account of a visit to a country house, and we are left with the same bewildered and rudderless feeling as when we read "Erewhon." Whose standards are the "real" ones—ours or the ghosts? The problem of dual personality is elaborated in the story of a Damascene water-seller who is carried off to fight in the lines of Tchatalja. The greatest triumph of all is achieved in the chapter dealing with William X. Plosive, nicknamed "Billy Burst." Here a metaphysical disquisition on the nature of time masquerades before us as the chronicle of two mischief-loving schoolboys, whose favourite pastime it is to "do good" to old gentlemen by asking them the time! The remainder of the essays do not approach the surprising subtlety of these metaphysical *tours de force*, but they will be thoroughly enjoyed by all lovers of "Mad Shepherds" and Mr. Jacks's other books.

What is Education? By Stanley Leathes. (2s. 6d. net. G. Bell.)

The title of this little volume of 191 pages is misleading. It is made up of a series of nine essays that are independent of each other, several of them having appeared already in print. The subject of the first essay gives its name to the book. While the reader may be disappointed at the unsystematic character of the book he will be pleased with the intrinsic excellence of the essays as self-contained units of criticism. The author proclaims himself an examiner, indeed "perhaps the Arch-Examiner," and as such has acquired an almost unique knowledge of certain aspects of School and college work. The nine studies are naturally of very unequal merit. His title essay does not lead us very far. It does not help the teacher much to be told that "the art of education is not a science." He might almost have guessed that for himself. But in spite of his empiricism, the author contrives to bring into his work a great deal of valuable theory that does much to build up a science, though he is so scrupulously honest that he labels it "inexact science." Two general essays, "Education and Business" and "Education and Life," are full of sympathetic criticism. He recognizes how much is demanded from our teachers, and suggests moderation on the part of the public. Further he knows so much about the improvements that are being continuously made in our schools that he guards himself against the too prevalent practice of criticizing methods that are being discarded by the teachers themselves. It is delightful to have one of our critics writing a sentence like this: "I am always afraid of saying anything about schools, lest the fault to which I refer may have been removed while I was not looking." The same sympathetic insight marks the essays on "Modern Languages," "Compulsory Greek," "A School of Modern Humanities," and "The Teaching of English at the Universities." This last chapter is of very special value, as it indicates a mode of making the best of English on the utilitarian side, without in the least interfering with its cultural value. But it is in the last two chapters, "Examinations" and "History," that Mr. Leathes reaches high-water mark. Here he is dealing with matters of which he is an acknowledged master, and can speak with an authority that few have any right to dispute. For an Arch-Examiner our author is exceedingly alive to the dangers of his calling. He knows that those of his craft are apt to "regard their marks as the act of God: they must not be tampered with." When, therefore, he puts in a plea against the excessive reaction against examinations we are prepared to accept his evidence as unbiased, and to lay it up in our hearts and practise it in our lives. Though the essay on History is of less general interest, it is of importance to everyone concerned with the teaching of this difficult subject. The treatment of "guessing" raises points that deserve the earnest consideration of teachers of all subjects.

Mr. Leathes has a striking way of presenting his matter. He is keenly alive to the dangers of a too easy generalization. "Given a judgment, man elevates it into a precedent. Given a hint, he stiffens it to a rule. Given a principle, he kills it and calls its stuffed image a law." So our author prefers to present his truths in a more or less tentative way, relying upon us to read into his figurative language as much truth as our intelligence can suggest. For example, the following mean just as much as the reader is able to take out of them: "They opened schools, but they did not understand that they were closing the school of life," "Teachers are a by-product of the educational system," "Every don should constitute himself a professor of English," "The tortoise once beat the hare, but as a rule the hare can afford to spend some time in sleep." Mr. Leathes says so many fresh things that no one can agree with them all, but he says them so well that everybody would like to. Miscellaneous as the volume is, then, it contains so much excellent matter that no teacher who seeks to keep abreast of the literature of his subject can afford to neglect it.

Aegean Days. By J. Irving Manatt. (12s. net. John Murray.)

Of Mr. Manatt's qualifications to write a book on "Aegean Days" the title-page gives ample assurance, for we see that the author is now Professor of Greek in Brown University, and, what is still more pertinent, was for four years American Consul at Athens, a sojourn which apparently whetted his appetite for subsequent visits to Greece. The preface tells us that "the simple aim of the book was to share with kindred spirits—with all true lovers of old Greece—the author's own impressions of the brave blue Aegean." And the first Part is really the record of a summer spent among the Aegean Isles, with Andros as headquarters. Part II takes us rather further afield—as far as Troy, going east, and Ithaca and the Adriatic, going west. Further, the author says in his preface that "Events" (*i.e.* the Balkan War) "have given this unpretending book a second intention, and he would gladly contribute his mite to the common protest against Greek subjugation to the Turk," approving the maxim ascribed to the late Lord Salisbury (was it not?) that lands once freed from the Turkish yoke should never be allowed to fall beneath it again. This is a plea natural indeed to every Phil-Hellene, and in his chapter entitled "Chios' Stricken Isle," Mr. Manatt adduces some very damning evidence of Turkish barbarity in 1822; but there are sundry incidents in the conduct of the Allies in the later stages of the Balkan War which make one hesitate a little before accepting the author's assertion of the complete fitness of the Greeks for the responsibilities of government.

Part I of "Aegean Days" centres round Andros, where the author and his family took up their abode during their holiday from Athens, which the summer heat renders both unhealthy and uncomfortable; and, with this as his base, Mr. Manatt

pilots us on sundry delightful excursions throughout the Cyclades; and an admirable cicerone he makes among these islands so rich both in mythical and historic interest. Thus we visit Euboea, Naxos, Paros, and Tenos, enjoying—at second hand!—the varying moods of the Aegean, which often dictate the duration of our visits; and, by dint of frequent rambles, we become quite familiar with rugged Andros.

In the lore of the Cyclades Mr. Manatt is indeed well versed; in Tenos, he tells us of the great temple of Poseidon and Amphitrite that once stood there, and compares its festivals with the present-day pilgrimages to the Church of the Virgin there—pilgrimages which remind one, though only pleasantly, of Zola's "Lourdes." In Naxos thirty centuries pass before our eyes, from the day when Ariadne awoke to find Theseus fled, through the tyranny of Lygdamis and the suzerainty of Rome, to the latter-day dominion of the Porte. The marble quarries of Paros evoke the shadows of the great Greek sculptors; and from these galleries of antiquity we turn almost with relief to the pleasant pictures of the homes and uneventful daily life of Mr. Manatt's Andrian friends, and find his young companion, Andreas, snaring birds "with the same lime-twig . . . which Aristophanes used nearly four-and-twenty centuries ago; but he is quite unconscious of the fact that his pastime is a cruelty old enough to have been condemned by Plato in the 'Laws': 'Let not the insidious fancy of catching birds, which is hardly worthy of freemen, come into the mind of any youth.'"

In Part II, entitled "Some Island Studies," there is an interesting chapter recounting a short cruise in the Aegean, under the guidance of Dr. Dörpfeld, the archæologist. Keos and its poets, Simonides and Bacchylides, and Lesbos and the Lesbian poets—notably Sappho, of course—each supply us with a chapter too. Incidentally, Mr. Manatt adduces some quite interesting arguments in favour of the Lesbian origin of Homer. A visit to Troy marks the easternmost limit of the Aegean wanderings, and the book closes with two chapters entitled "An Ithacan Pilgrimage" and "Dörpfeld's Ithaca," which is not Ithaca at all, but the neighbouring island of Leukas. Finding his excavations give no support to the traditional theory of Odysseus' home, Dr. Dörpfeld boldly transferred his attention and his allegiance to Leukas as the true Ithaca, and the geographical descriptions of the latter island rather tend to confirm this theory. But it will need very strong evidence to explain away the difficulty of the name.

It is unfortunate that the author's literary style is marred by such sentences as "a myth stalled in Utopia, we begin to think, before we *realize upon it*"; "we were *shut up to the* Adonis of the day"; and "the first sentence of my *rendition* from crabbed German." Also there is a distinct tendency to qualify nouns with an excess of adjectives. But these are small matters; and we have to thank Mr. Manatt for some very pleasant hours, for renewing our desire to visit the Isles of Greece, and for the delightful illustrations with which "Aegean Days" abounds.

Proceedings of the Fifth International Congress of Mathematicians. Cambridge, August 22 to 28, 1912. Vols. I and II. Edited by Prof. E. W. Hobson, Sc.D., F.R.S., and Prof. A. E. H. Love, F.R.S. (30s. net. Cambridge University Press.)

Two—we may even say more than two—distinct classes of reader will be interested in these massive volumes, compiled by the well known and indefatigable General Secretaries of the International Congress of Mathematicians, held at Cambridge in August 1912. The publication has been issued in substantial library form, and with the usual care of the Cambridge University Press. Primarily the volumes will be a most valuable work of reference for those who had the privilege of being able to gratify a desire to take part in the meetings and functions, serious and social, of the Congress. Further, the compilation will be productive of pleasure as a reminiscence of a week brilliant in all save the weather that prevailed. Again, many who were prevented from participating in the pleasant and intellectual personal intercourse afforded by attending the Congress itself will have the lesser, but nevertheless the great, advantage of possessing in sufficiently compact form the rich stores of material which combined to make up the series of valuable papers and lectures contributed by mathematicians belonging to various English-speaking and Foreign nations—men of whom many are well known both in the educational and in the literary and scientific world. The collected papers, it is scarcely necessary to say, embody the latest ideas on the subjects considered, and present them in a manner always able, often notably so. As here printed, they reproduce accurately the originals, and in the languages in which they were respectively communicated to the Congress. The majority of the contributions will, of course, appeal more particularly to the mathematical expert and the mathematical specialist. But some of the papers are calculated to interest the general reader also, for they deal less with theory and technicalities and more with the place of mathematics in education. The earlier of the two volumes of the "Proceedings" is suitably subdivided into two Parts. Of these the first gives a report of the Congress, enumerating the members of its various Committees, and furnishing detailed lists of those who occupied official positions, whether in connexion with the Congress as a whole or its particular Sections. It gives also the names of special delegates to the Congress and of the ordinary members, and a practical device, consisting in the use of different varieties of type, makes clear the distinction between the permanent and the temporary addresses of the entire assembly. Interesting as a question of statistics is a table showing the "Distribution of Members of the Congress according to Nationality." The "Regulations" framed for observance by those attending the Congress appear both in English and in equivalent Continental forms, and a résumé of the general meetings and social functions which took place during the week, as also of the sectional meetings, completes the historically interesting first Part of Vol. I. It may be well to observe that some of the leading speeches are reported apparently verbatim. We are still only at page 67 of Vol. I when the second Part of the volume commences, and from that point, through nearly four hundred and fifty pages of the same volume, and throughout its successor, the reader will find *in extenso* the lectures and papers which represent the prepared and formal portion of the interchange of thought on the numerous subjects discussed.

Obviously this is not the place to attempt to examine critically the contents of the various papers; and, confronted with such a wealth of valuable mathematical information and literary composition, it would, under any circumstances, be as impossible to comment on every paper as it would be invidious to single out one here and one there for detailed consideration. Some of the contributions are of absorbing interest to the scholar engaged in pure mathematical research; others to those pursuing investigations involving mathematics as applied to physical science in its numerous branches. A third group promises both pleasure and profit to mathematicians who devote themselves to the science in its relation, on the one hand to philosophy and history, on the other to educational questions and methods. Papers there are which treat of the place which should be assigned to mathematics in practical work, as exemplified in engineering and naval architecture. Our task must perforce be confined to directing the attention of the mathematical world at large to the new and rich addition which this compilation has made to the library of mathematics. Clear diagrams are attached to the text of some of the papers, although the volumes are not profusely illustrated. Each volume acquires special value, and is rendered the more useful, on account of the fact that it is indexed. The work is not entirely free from misprints, but these may be corrected probably without difficulty.

"The Cambridge History of English Literature." Edited by Sir A. W. Ward, Litt.D., F.B.A., Master of Peterhouse, and A. R. Waller, M.A., Peterhouse. Vol. X: *The Age of Johnson.* (9s. net. Cambridge University Press.)

The new volume of this comprehensive history keeps well abreast of its predecessors, both in literary interest and in technical handling. Happily the treatment of Johnson, whose name rules the period, rises worthily to the occasion. A more careful, sympathetic, and penetrating essay than Mr. D. Nichol Smith's was not to be anticipated. Happily, too, Mr. Smith does complete justice to Boswell, showing clearly that, whatever may have been his vanities and oddities, he

worked out his biography on a thoroughly studied plan and with indefatigable labour and care. This essay alone would serve to give distinction to the volume. Immediately following it is a charming chapter on Goldsmith by Dr. Austin Dobson, who is perfectly familiar with his subject, and acute as well as sympathetic. Goldsmith, like Boswell, suffered from shallow criticisms of superficial characteristics; but these Dr. Dobson brushes firmly aside, as Johnson had done before him in his just and memorable expression: "Let not his frailties be remembered; he was a very great man." The opening chapters deal adequately with the great novelists of the period. M. L. Cazamian, of the Sorbonne, presents a good critical estimate of Richardson, with a specially interesting account of his influence on French literature and national sentiment, and his hardly less extensive and deep-reaching influence in Germany.

Fielding and Smollett are treated in the same chapter by Mr. Harold Child, who concludes his able essay with an instructive comparison of the literary achievements and influence of the two authors. Prof. Vaughan takes in hand Sterne and "his alleged disciples," Mackenzie ("The Man of Feeling") and Brooke, together with the novelists "of terror," and the more modern developments of Fanny Burney. He deals faithfully with Sterne and uses the comparative method with effect; but his style resists the levelling process aimed at by the editors, and this will not, perhaps, be a defect in the eyes of his readers. The varied and complex development of the English drama during the period is traced carefully by Dr. Nettleton, of Yale University, with instructive and reasonable estimate of the reciprocal influence of English and French (and German) theory and practice, and with due record of Garrick's varied activities. The chapter on Thomson, elaborate as it is, leaves a feeling of dissatisfaction, which is at once swept away by the very admirable chapter on Gray by (alas! the late) Duncan C. Tovey. Prof. Saintsbury handles Young, Collins, and lesser poets, with his accustomed directness and spirit and in his uncontrollable style. The last strictly literary chapter is by Prof. Ker, who sums up, with his usual penetration and quiet decision, the literary influence of the Middle Ages. After that we are thrown among letter writers, historians, philosophers, divines, and politicians. In all these groups the outstanding chapter is that on Gibbon by Sir A. W. Ward, though David Hume is adequately treated—as historian by Dr. Hunt, and as philosopher by Prof. Sorley. The volume is of widely varied interest and, on the whole, most capably written. We need merely mention the comprehensive and valuable bibliography and the useful index.

The Continent of Europe. By Lionel W. Lyde, M.A., F.R.G.S. (7s. 6d. net. Macmillan.)

This is a reference book containing the most detailed information with regard to the geography of Europe, but the whole is so pleasingly put together that we feel certain that it will be read by many who are not admittedly geographers. Apparently the book is the first of a series of studies which are to be so written as best to emphasize the points of individuality of each of the continents of the world. The volume is based on a survey of the political unit and its political subdivisions, and certainly Prof. Lyde makes out a very strong case for this particular form of treatment. There are twenty-three chapters, of which the first ten, occupying about one-sixth of the book, deal with general introductory material. An analysis of the "World Relations of Europe" gives the author an early opportunity to support the "tetrahedral theory"; in fact, the structural detail of this somewhat complicated continent is in the forefront throughout; and yet, whether it be in connexion with orography or in explanation of the localization of industries, the presentation is always strictly geographical. Chapters on Relief and Relief Control are followed by accounts of Climate and Climate Control, and in the course of these sixty pages, in particular, we find decided support for Prof. Lyde's own statement that geography is second only to literature as an educational agent. This portion of the book is packed with allusions to varied aspects of the subject, which will suggest numerous side-lines of humanistic study to the careful reader. In various parts of the book the author himself constructs such chains of reasoning, and the fitting is so skilful that it becomes difficult to realize, in some cases, that the finished theory is not of necessity a well established fact, though it must be noted that the reader is amply warned in those cases where the data are incomplete or uncertain. As will be expected in connexion with any writing by Prof. Lyde, the study of "Climatic Control" becomes an outstanding topic throughout, and its principles are applied in each of the thirteen chapters dealing with the political units, and we call particular attention to its application in the case of Russia, under the sub-heads of "Climatic Ignorance" and "Climatic Tyranny." The actual get-up of the book is excellent. It is carefully and clearly printed, and contains twelve maps in colour and upwards of a hundred black-and-white illustrations in the text. It is complete with index and continuous marginal summaries. Needless to say, the book should meet with a very satisfactory demand.

GENERAL NOTICES.

EDUCATION.

The Service of the Hand in the School. By Woutrina A. Bone. (3s. net. Longmans.)

This little book falls naturally into two parts. Thirty-five pages are devoted to the somewhat theoretical aspects of the question, such as the value of handwork, its place in the progress of the human race, and a consideration of the three types of workmen—the labourer, the craftsman, the artist. The remaining 177 pages are occupied with a "Practical Record" that should gladden the hearts of those teachers who are in search of ideas to be put into immediate practice in the schoolroom. The book is not made up of mere "tips," though these are present in sufficient abundance, but takes a wide view of the whole subject, and expects its intelligent readers to do their share in ensuring success by bringing their own brains to bear on the problems set forth. Even in this "Practical Record" the wider issues are not neglected. We have Handwork in its Relation to the Doings of Man, the History of the Craft, and a Song Chapter with the attractive title the Broader Margin. After getting thus far, the authoress evidently found that she had in hand a series of useful notes and records that "refused to be classified under the headings of the previous chapters," so she finds a place for them under the title of Short Records of Lessons. These will be found of great practical use by the teacher, and this section, as well as the rest of the book, is excellently illustrated by drawings, both plain and coloured. We envy the pupils who are to be taught by those who read this book.

Child Mind: an Introduction to Psychology for Teachers. By Benjamin Dumville. (2s. 6d. University Tutorial Press.)

This book, as its author tells us, "treats in a simpler and more abbreviated form the same matter as that dealt with in the larger work entitled "The Fundamentals of Psychology." We fear that Mr. Dumville is here likely to prove his own most formidable rival. We have nothing to say against his larger work—it was justly praised in these columns—but we cannot help feeling that this excellent little volume will be found to contain so much matter, and that matter so well put, that the ordinary student in training will not need the help of the larger treatise. There is a certain danger that the student in training may get too much pure psychology. The whole tendency of the trainers of teachers now is to select from the work of the psychologist only those portions that are of real value in the work of education. This little book supplies just this minimum, and presents it with admirable clearness and force. Probably something is gained by the smaller canvas; at any rate, on reading over the whole, the student will find that he has an excellent conspectus of the subject as a unity. As to the presentation, we find that it exemplifies the best precepts of exposition. For a characteristic example of the author's skill let the reader turn to the passage dealing with the overlapping of habits and instincts.

A Manual of School Hygiene. By E. W. Hope, E. A. Brown, and C. S. Sherrington. (Cambridge University Press.)

This is a new and revised edition of a well known treatise that has stood the test of a dozen years' use. The two medical men whose names stand first on the title-page command the confidence of the teaching profession, and when Prof. Sherrington is added there is a combination of talent that it would be very difficult to beat. This edition has six chapters added by Prof. Sherrington on the Physiology that is necessary to the intelligent understanding of the science of health. The book can be strongly recommended.

Certificate Hygiene. By the Rev. A. W. Parry. (1s. 6d. University Tutorial Press.)

Confessedly a compilation, the sources of which are given in the

preface. The title of the book indicates its purpose, and it can be honestly said that it will serve that purpose extremely well.

ENGLISH.

Preliminary English Course. By A. M. Walmsley, M.A. (1s. 6d. University Tutorial Press.)

This little book follows the sound plan, which is now being generally adopted for young pupils, of combining, as far as possible, lessons in grammar and analysis with lessons in composition. The general plan is well judged and a good deal of the revised nomenclature has wisely been introduced. A young teacher who is in need of guidance will get some help here; but the book does not seem wholly suitable to be put into the hands of pupils of eleven or twelve years of age, for whom it is apparently intended.

A Practical Course in Secondary English. By George Ogilvie, M.A., and Edward Albert, M.A. (4s. 6d. Harrap.)

We have here a comprehensive handbook to the study of English for the use of pupils in the later years of a secondary course. The book is in three parts, dealing respectively with style, form, and language, and professes to be a complete guide, not only to the study of the English language in its general aspect, but to the arts of composition and literary criticism. The task which the authors set before them has been very systematically carried out. In some cases, as in the chapter on prosody, it would seem that their classification has been unnecessarily elaborate. The abundant material for exercises supplied throughout the book should be found very useful by teachers.

An Advanced English Grammar, with Exercises. By George Lyman Kittredge and Frank Edgar Farley. (4s. Ginn.)

This volume offers a clear and exhaustive statement of the facts of English grammar, of the rules of English syntax as far as its usage can be subjected to rules, and of the general principles of linguistic analysis. The book is perhaps more suitable for reference than for continuous study; but the exercises supplied at the end should be found useful for class work. The point of view is at times a little rigid. In dealing with the uses of "shall" and "will," for example, it might have been pointed out that, even in the writings of the best authors, the rule is now almost as much honoured in the breach as in the observance.

"Home University Library."—(1) *Shelley, Godwin, and their Circle.* By H. N. Brailsford, M.A. (2) *The Writing of English.* By W. T. Brewster, A.M. (1s. net each. Williams & Norgate.)

(1) Mr. Brailsford's book somewhat belies its title, for scarcely an eighth of its pages deals with Shelley, and even there it is less the man or the poet than the exponent of Godwin's theories that the author is concerned with. Nevertheless, this is a noteworthy contribution to the series to which it belongs. The purpose it serves is a serious and a useful one—namely, to trace the influence on English thought of the outburst of political and social aspiration represented by the French Revolution. What is to be said on this head is fittingly made to centre chiefly round the personalities of Tom Paine, William Godwin, and Mary Wollstonecraft, who stand out clearly from the background of the conflicting idealism and panic of the time. Mr. Brailsford has given us much more than a vivid record of controversies and conflicts; his criticism has a philosophical as well as a historical value, summing up, as it does, the whole trend of the progressive movement in thought and life from the closing years of the eighteenth century up to the present time. The book is very effectively written, and will be found full of interest.

(2) Prof. Brewster, one of the editors of the series, has written an excellent manual of composition—all the more excellent because it is so little of a manual in the ordinary sense. Never has there been a more vivid and interesting statement of the common-sense view of the matter. The writer lays little store by elaborate classifications and formal rules. Though he stops short of the extreme simplicity of Spencer's definition of literary style as equivalent merely to the utmost economy of the reader's attention, he approaches it pretty closely. In his view the whole art lies in observing the conditions of clearness, conciseness, and movement, the last term being taken to include all the graces. The book is not one to be studied laboriously, but should, if possible, be read through at a sitting; for its chief value lies in the unity of impression that it produces. It is a scientific inquiry into the theory of what is, perhaps, the most universal of the arts, and the problem is handled, not only with all the dexterity of a practised expositor, but with the verve and sagacity of a clear-sighted man of affairs. One may at times be tempted to think that the book proves only the futility of all such manuals, for the impression it leaves is that, apart from special genius which is above all rules, those alone can write well who have good judgment and are willing to take pains, and that where these gifts are present little further advice is needed. All readers of this volume, however, will feel that the subject has been illuminated for them in ways that, indirectly at least, cannot fail to affect their practice. A special feature of the work is the happy choice of illustrations, drawn from a great variety of sources.

Selected English Letters (XV–XIX Centuries). Arranged by M. Duckitt and H. Wragg. (1s. net. Oxford University Press.)

It was a happy thought to issue this little volume of typical specimens of English epistolary literature, and the task of selection has been very judiciously performed. Most of the letters are representative of famous writers, but the net has been widely cast so as to admit a large variety of topics and many different points of view. The book may be heartily recommended, not only as a treasure house to be dipped into with pleasure in an idle moment, but also as a valuable record of the development of one of the most interesting forms of composition.

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A Handbook of English Literature. By W. T. Webb, M.A., and J. A. Aldis, M.A. (5s. net. John Bale, Sons, & Danielsson.)

The fact that this manual was prepared for students of Indian colleges may account for some of its peculiar features. The idea of offering a general sketch of the course of English literature in anticipation of more detailed treatment of a select number of representative authors will meet with approval, but it cannot be said that it has been successfully carried out. In the general chapters there are far too many names and dates, so that one can hardly see the wood for the trees. The choice of outstanding writers for more detailed consideration is not wholly well advised. It is strange to find in so limited a number as thirty-eight the names of Southey, Campbell, Helps, and Froude, while such masters as Chaucer, Defoe, Swift, Fielding, Gibbon, and Burns are left out in the cold. It would have been better if the specimens given of each author's style had consisted of extended passages rather than disconnected quotations. The book does not gain in value from the laudatory introduction contributed by Mr. C. H. Tawney, but many of the critical estimates offered by the writers are sound and interesting.

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(*Continued on page* 40.)

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(*Continued on page* 42.)

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(*Continued on page* 44.)

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$$hx+by+f = \beta,$$
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An easy elimination gives

$$\begin{vmatrix} a-\gamma & h & g \\ h & b-\gamma & f \\ g & f & c-\gamma \end{vmatrix} = 0,$$

and this cubic must have three unequal roots $(\gamma_1, \gamma_2, \gamma_3)$, since the Question supposes the existence of three distinct values of (x, y).

Now let x_r, y_r, α_r, β_r be the values of x, y, α, β which correspond to the root γ_r; so that

$$\alpha_r = x_r\gamma_r, \quad \beta_r = y_r\gamma_r, \qquad (r = 1, 2, 3)$$

and consequently the identity

$$\alpha_1x_2+\beta_1y_2+\gamma_1 = \alpha_2x_1+\beta_2y_1+\gamma_2$$

reduces to
$$(x_1x_2+y_1y_2+1)(\gamma_1-\gamma_2) = 0,$$

which is one of three similar results obtainable in this way.

But since γ_1, γ_2, γ_3 are, as has been seen, necessarily unequal, these three results are $x_1x_2+y_1y_2+1 = 0$, ..., ...

[Rest in *Reprint*.]

17395. (H. D. Drury, M.A.)—To every triangle belong three pedal lines, and not more than three, which touch the nine-point circle, and the triangle formed by the three is equilateral.

Solution by the Proposer.

Let P be a point whose pedal line touches the nine-point circle.

Let H be the orthocentre of the triangle.

Join HP, and bisect HP in E.

From P draw a perpendicular to BC, and produce it to meet the circle in X.

Now H is a centre of similitude of the nine-point circle and circum-circle; therefore the nine-point circle passes through E, and the tangents to the two circles at E and P are parallel.

The pedal line of P passes through E; therefore, by hypothesis, it is the tangent to the nine-point circle at E; therefore the pedal line is parallel to the tangent of the circum-circle at P.

Again, the pedal line of P is parallel to AX;
therefore AX is parallel to the tangent at P;
therefore arc AP = arc PX;
but arc AP = arc XD, by parallel chords;
therefore the point P trisects the arc ABD, and is the point of trisection next to A.

There will be another such point, Q, for the vertex B, and a third point R for the vertex C.

Thus we get three points P, Q, R whose pedal lines touch the nine-point circle,

P being the point of trisection, next to A, of arc ABD,
Q ,, ,, ,, B,, ,, BCF,
R ,, ,, ,, C, ,, CAG.

(*Continued on page* 48.)

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It would seem that we ought to get three more such points if we start at A and go round the circle in the opposite direction.

Not so, however, for we get the same identical points.

We shall find that the point P, which is defined as the point of trisection, next to A, of the arc ABD, is also the point of trisection, next to B, of the arc BAF.

For arc BG = arc BD, since $\angle$ BCG = $\angle$ BAD ;

therefore arc ABD = arc AB + arc BG.

In the same way, arc BAF = arc AB + arc AG ;

therefore arc ABD + arc BAF = 3 arc AB

= 3 arc AP + 3 arc BP ;

but arc ABD = 3 arc AP ;

therefore arc BAF = 3 arc BP.

It is evident that the triangle PQR is equilateral ; therefore tangents to the circle at P, Q, R form an equilateral triangle ; therefore the three pedal lines for P, Q, R which are parallel to the tangents also form an equilateral triangle.

17620. (J. M. Child, B.A., B.Sc.)—Prove that, if n is a prime number, and m is less than n, $(mn)!/(n!)^m - m!$ is divisible by n^3. Is this theorem new? If not, who first enunciated it?

Note by Lt.-Col. Allan Cunningham, R.E.

The theorem requires the restriction that m should be a prime > 3. A theorem of less generality than the present one, and, in fact, only the special case of the present one when $m = 2$, was proposed by the writer as Question 16168 in this journal of March 1, 1907. The solution is given in the *Reprint*, Vol. xii, p. 94. The proof of the present theorem is more difficult.

17473. (C. M. Ross, B.A.)—If

$$U = \int_0^\infty \int_0^\infty e^{-(x+y+a^3/xy)}\, x^{-\frac{2}{3}} y^{-\frac{1}{3}} dx\, dy,$$

prove that $\partial u/\partial a = -3U$. Hence show that $U = 2\pi/\sqrt{3}.e^{-3a}$.

Solution by the Proposer.

Differentiating the integral with respect to a, we have

$$\frac{\partial U}{\partial a} = -3a^2 \int_0^\infty \int_0^\infty e^{-(x+y+a^3/xy)}\, x^{-\frac{2}{3}}\, y^{-\frac{1}{3}} \frac{dx\, dy}{xy}.$$

Let us substitute for x another variable z, such that

$$xyz = a^3 ;$$

then $$\frac{\partial U}{\partial a} = -3 \int_0^\infty \int_0^\infty e^{-(y+z+a^3/yz)}\, y^{-\frac{2}{3}} z^{-\frac{1}{3}}\, dy\, dz ;$$

therefore $$\frac{\partial U}{\partial a} = -3.U$$

(since the last integral will have the same value as the given one).

Again $$U = Ce^{-3a}.$$

Now, when $a = 0$,

$$U = \Gamma(\tfrac{1}{3})\, \Gamma(\tfrac{2}{3}) = 1/\sqrt{2}\,(2\pi) = C.$$

Hence $$U = 1/\sqrt{3}\,(2\pi)\, e^{-3a}.$$

N.B.—Sometime ago in a note to me Mr. Hammond, an old and well known contributor to the *Educational Times*, took exception to the method of differentiation under the sign of integration in the above case. Since then I have had the valued opinion of Prof. E. W. Hobson on the matter, and he confirms the validity of the method which is to be found in Bertrand's *Calcul Intégral*. In dealing with my question Prof. Hobson wrote as follows :—

" . . . . Bertrand's method gives the correct result, but his differentiation under the sign of integration requires justification, which can be easily given. . . .

Consider $$U = \int^\infty \int_0^\infty e^{-(x+y+A/xy)}\, x^{-\frac{2}{3}} y^{-\frac{1}{3}} dx\, dy,$$

when A is real and positive. Change A into A + h, then

$$\frac{U(A+h) - U(A)}{h} = \int_0^\infty \int_0^\infty e^{-(x+y+A/xy)} \frac{e^{-h/xy} - 1}{h}\, x^{-\frac{2}{3}} y^{-\frac{1}{3}} dx\, dy.$$

Now $$e^{-h/xy} = 1 - h/xy + h^2/2x^2y^2 . e^{-\theta h/xy},$$

where $$0 \leqslant \theta \leqslant 1.$$

Hence

$$\frac{U(A+h) - U(A)}{h} = -\int_0^\infty \int_0^\infty e^{-(x+y+A/xy)}\, x^{-\frac{5}{3}} y^{-\frac{4}{3}} dx\, dy$$
$$+ \tfrac{1}{2}h \int_0^\infty \int_0^\infty e^{-(x+y+A/xy)}\, e^{-\theta h/2x^2y^2}\, \frac{x^{-\frac{8}{3}} y^{-\frac{7}{3}}\, dx\, dy}{x^2y^2}.$$

Since $$e^{-\theta h/2x^2y^2} \leqslant 1,$$

the second term is less than

$$\tfrac{1}{2}h \int_0^\infty \int_0^\infty e^{-(x+y+A/xy)}\, x^{-\frac{8}{3}} y^{-\frac{7}{3}}\, dx\, dy,$$

or $< h \times$ a fixed number independent of h at both limits, since the integral is convergent on account of the exponential in the integrand, we now have

$$\frac{dU}{dA} = -\int_0^\infty \int_0^\infty e^{-(x+y+A/xy)}\, x^{-\frac{5}{3}} y^{-\frac{4}{3}}\, dx\, dy. \ . \ . \ ."$$

From this point Prof. Hobson's evaluation follows more or less on the lines of my own work.

17094. (Professor Neuberg.)—On donne dans l'espace quatre droites quelconques a, b, c, d. Peut-on trouver sur a, b, c trois points A, B, C tels que le centre de gravité de ces points chargés des masses données α, β, γ soit situé sur d?

Solution by A. M. Nesbitt, M.A., N. Sankara Aiyar, *and others*.

Taking for the equation of three of the straight lines

$$(x - a_k)/l_k = (y - b_k)/m_k = (z - c_k)/n_k = r_k \quad (k = 1, 2, 3),$$

we shall lose no generality by taking $x = y = z$ as the equations of the fourth, nor by the further assumption $\alpha + \beta + \gamma = 1$.

We are thus at once led to the following *two* equations to determine the *three* quantities r_1, r_2, r_3,

$$(a_1 + l_1r_1)\,\alpha + (a_2 + l_2r_2)\,\beta + (a_3 + l_3r_3)\,\gamma$$
$$= (b_1 + m_1r_1)\,\alpha + (b_2 + m_2r_2)\,\beta + (b_3 + m_3r_3)\,\gamma$$
$$= (c_1 + n_1r_1)\,\alpha + (c_2 + n_2r_2)\,\beta + (c_3 + n_3r_3)\,\gamma.$$

Thus the problem may be solved in an infinitude of ways.

The following solution is due to the Proposer :—

Soit D le centre de gravité des masses α, β, γ attachées aux points A, B, C de a, b, c. La droite CD rencontre la droite AB en un point E tel que

(1) AE : EB = $\beta : \alpha$, (2) ED : EC = $\gamma : (\alpha + \beta)$.

On peut prendre pour D un point quelconque de d. Car la condition (2) donne alors pour le lieu du point E une parallèle e à c, dans le plan cD. La condition (1) donne pour le lieu de E un plan ϵ qui est parallèle à a et b. Le point E est donc l'intersection de e avec ϵ. On voit que tout point de d peut être pris pour centre de gravité.

Note on the Quadrilateral.

By R. F. Davis, M.A.

Let ABC be a triangle, and PQR any transversal cutting the sides BC, CA, AB in P, Q, R. Take P', Q', R' the isotomic conjugates to P, Q, R (so that BP = P'C, ...); then by a well known property P', Q', R' are collinear. Draw AD, DM chords of the circumcircle parallel to P'Q'R' and BC respectively.

Then shall each of the circumcircles of the triangles AQR, BRP, CPQ pass through M.

Tangents from B, C to circumcircle of AQR are as

BA.BR : CA.CQ

= BA.AR' : AC.AQ'

= BA sin AQ'R' : AC sin AR'Q' = BA sin DAC : AC sin BAD

= BA sin MAB : AC sin MAC,

or as the perpendiculars from B, C on AM.

Hence AM is the radical axis of the circumcircles of ABC, AQR ; similarly BM, CM are the radical axes of the circumcircles of ABC, BRP and ABC, CPQ. The analytical view is interesting. Since ABC lie on a hyperbola whose asymptotes are PQR, P'Q'R, the

perpendiculars from A, B, C on P′Q′R′ are inversely proportional to p, q, r, the perpendiculars from A, B, C on PQR ($\Sigma p\, a\alpha = 0$). The point at infinity on P′Q′R′ ($\Sigma a\alpha/p = 0$) or on AD has its trilinear co-ordinates $p\,(q-r)/a$, $q\,(r-p)/b$, $r\,(p-q)/c$. Therefore the trilinear co-ordinates of M (isogonally conjugate to the former point) are $a/p\,(q-r)$, $b/q\,(r-p)$, $c/r\,(p-q)$.

[See Gallatly's *Modern Geometry of the Triangle*, 2nd ed., p. 5.]

Parabola considerations point to P′Q′R′ being parallel to the diameter of the quadrilateral ACPR.

16924. (W. F. Beard, M.A.)—A, B, C, D are four points on a conic; a similar and similarly situated concentric conic cuts AC, BD at P, Q, R, S; any conic through P, Q, R, S meets AB at E, F. Prove AE = BF.

Solution by Professor E. J. Nanson.

The pencil of conics through P, Q, R, S determines an involution on AB in which A, B are mates, and, since the chords determined on AB by the two concentric conics have the same middle point M, that middle point and the point at infinity on AB are the double points of the involution, so that M bisects EF as well as AB, and therefore AE = FB. (Cf. *Reprint*, Vol. 70, p. 67.)

The Proposer and Krishna Prasad De, M.A., solve as follows:—

Let AB, CD meet at O, take OAB, OCD for axes, and let OA = a, OB = b, ... The equation of the first conic is of the form

$$\lambda xy + (x/a + y/c - 1)(x/b + y/d - 1) = 0\,;$$

therefore the equation of the similar concentric conic is

$$\lambda xy + (x/a + y/c - 1)(x/b + y/d - 1) + \kappa = 0.$$

Thus the equation of the third conic is of the form

$$\lambda xy + (x/a + y/c - 1)(x/b + y/d - 1) + \kappa + \mu\,(x/a + y/c - 1)(x/b + y/d - 1) = 0.$$

Where $y = 0$, $\quad (x/a - 1)(x/b - 1)(1+\mu) + \kappa = 0,$

$$(x-a)(x-b) + \kappa ab/(1+\mu) = 0.$$

Thus, if OE = x_1, OF = x_2,

$$x_1 + x_2 = a + b\,;$$

therefore $x_1 - a = b - x_2$; therefore AE = BF.

17621. (Professor K. J. Sanjána, M.A.) — Show that, when $6n+3$ is not a power of 3, the number $(x^{12n+6}+1)/(x^2+1)$ has five factors at least, n being a positive integer and $6x$ a perfect square. When, however, $6n+3$ is of the form 3^k, the number of factors is $2k$.

Solution by Lt.-Col. Allan Cunningham, R.E.

Let $2n+1 = m$ (for brevity). Then

$$\frac{x^{12n+6}}{x^2+1} = \frac{x^{6m}+1}{x^2+1} = \text{product of } X_{6m}.X_{2m}.X_6 \textit{ always},$$

where $\quad X_6 = \dfrac{x^6+1}{x^2+1} = (x^2+3x+1)^2 - 6x\,(x+1)^2 = P^2 - Q^2,$

when $\quad 6x = \square,$

and $\quad X_{2m} = (x^{2m}+1) \div (x^2+1)$

is irreducible (when m is prime). Also

$$X_{6m} = \frac{(x^{6m}+1)(x^2+1)}{(x^{2m}+1)(x^6+1)} = \frac{(x^{2m}+3x^m+1)^2 - 6x^m\,(x+1)}{(x^2+3x+1)^2 - 6x\,(x+1)^2}$$

$$= \frac{P_m^2 - Q_m^2}{P^2 - Q^2} = \text{L.M (two factors)},$$

when $\quad 6x = \square.$

Thus the proposed function has always five factors when $6x = \square$.

2. When $6n+3 = 3^k$, write $x^{2.3^k}+1 = f(k)$ for shortness. Then $f(k)$ contains $f(k-1)$, which contains $f(k-2)$, and so on. Lastly, $f(1)$ contains $f(0)$. Here $f(1) = x^6+1$, $f(0) = x^2+1$.

Hence $\quad \dfrac{x^{12n+6}}{x^2+1} = \dfrac{f(h)}{f(0)} = X_k \dfrac{f(k-1)}{f_0} = X_k.X_{k-1} \dfrac{f(k-2)}{f_0} = \ldots$

$$= X_k.X_{k-1}.X_{k-2} \ldots f_1/f_0$$

$$= X_k.X_{k-1}.X_{k-2} \ldots X_1 \text{ [}k\text{ factors]},$$

where, for shortness,

$$X_k = (x^{2.3^{k-1}} - x^{3^{k-1}} + 1), \quad X_{k-1} = \ldots, \ldots .$$

Also each X^k contains two factors (by what precedes).

Hence the proposed function has always k factors when

$$6n+3 = 3^k.$$

(*Continued on page* 50).

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17591. (A. M. Nesbitt, M.A.)—The tangent at P to an ellipse meets the axes at Q, Q′, and CQTQ′ is a rectangle. The perpendicular from C to TP will pass through the centre of curvature at P. Prove this by pure geometry.

Solutions (I) *by* W. F. Beard, M.A.:
(II) *by* Henry Riddell, M.E.

(I) Draw CF, TL perpendicular to QQ′, and CK perpendicular to TP to meet the normal at P in O. The circle on CT as diameter passes through KQQ′; therefore

$$PK.PT = PQ.PQ' = CD^2,$$

where CD is the semi-diameter perpendicular to QQ′. By similar triangles

$$PO/PK = PT/TL \quad \text{and} \quad TL = CF;$$

therefore $$PO.CF = PK.PT = CD^2;$$

therefore PO = the radius of curvature at P; therefore CK passes through O, the centre of curvature at P.

(II) Let PL be the normal, PM the line of the chord making angles with the axes equal to those made by the tangent, and let O be the centre of curvature. Then the triangle CNL is similar to TQQ′, and the homologous sides are perpendicular, hence CO will be perpendicular to TP, if

$$NO/OL = QP/PQ_1.$$

If B is the mid-point of the chord lying along PM, BOK is perpendicular to PM, and since ACM is a right angle, and PA and AB subtend equal angles at C, we have

$$PA/PM = QP/Q'P = AB/BM.$$

Considering now the two similar triangles CQQ′ and CAM, and the homologous lines PL and BK, we have

$$QP/AB = PA/AB = LC/CK,$$

since each ratio is that of a pair of homologous sides of the triangles. Hence the five lines PL, AC, BK, PM, and KM are tangents to the same parabola, and AB/BM = NO/OL, and the theorem is true. [Rest in *Reprint*.]

QUESTIONS FOR SOLUTION.

17652. (T. Muir, LL.D.)—If $r_1, r_2, \ldots, r_n$ be the rows, and $c_1, c_2, \ldots, c_n$ the columns of any determinant, and $\rho_1, \rho_2, \ldots, \rho_n$ be the rows, and $\gamma_1, \gamma_2, \ldots, \gamma_n$ the columns of any other determinant, then

$$\begin{vmatrix} r_1\rho_1 - x & r_1\rho_2 & \ldots & r_1\rho_n \\ r_2\rho_1 & r_2\rho_2 - x & \ldots & r_2\rho_n \\ \ldots & \ldots & \ldots & \ldots \\ r_n\rho_1 & r_n\rho_2 & \ldots & r_n\rho_n - x \end{vmatrix} \equiv \begin{vmatrix} c_1\gamma_1 - x & c_1\gamma_2 & \ldots & c_1\gamma_n \\ c_2\gamma_1 & c_2\gamma_2 - x & \ldots & c_2\gamma_n \\ \ldots & \ldots & \ldots & \ldots \\ c_n\gamma_1 & c_n\gamma_2 & \ldots & c_n\gamma_n - x \end{vmatrix}.$$

17653. (Professor H. Langhorne Orchard, M.A., B.Sc.)—Find the sum of the series

$$1 + \tfrac{1}{3} + \tfrac{1}{5} + \tfrac{1}{7} + \tfrac{1}{9} + \tfrac{1}{11} + \ldots + \tfrac{1}{15},$$

and show that 16 is a factor.

17654. (Professor K. J. Sanjána, M.A.)—Find the sum of the series,

(1) $$m + \frac{m^2}{2!} - \frac{m^4}{4!} - \frac{m^5}{5!} + \frac{m^7}{7!} \ldots,$$

(2) $$m + \frac{2m^2}{1!} - \frac{4m^4}{3!} - \frac{5m^5}{4!} + \frac{7m^7}{6!} \ldots,$$

(3) $$m - \frac{m^2}{1!} - 2\frac{m^3}{2!} - \frac{m^4}{3!} + \frac{m^5}{4!} + 2\frac{m^6}{5!} + \frac{m^7}{6!} - \ldots,$$

and (4) $$m - \frac{2^2m^2}{1!} - 2\frac{3^2m^3}{2!} - \frac{4^2m^4}{3!} + \frac{5^2m^5}{4!} + 2\frac{6^2m^6}{5} + \ldots$$

17655. (Lt.-Col. Allan Cunningham, R.E.)—Show how to solve in integers $N_1 + N_2 = N_3 + N_4$, where

$$N_r = (x_r^5 - y_r^5) \div (x_r - y_r).$$

Give one numerical example (not an identity).

17656. (D. M. Y. Sommerville, M.A., D.Sc.)—Prove that through every point of an anchor ring there pass two equal circles lying entirely in the surface, having a constant radius and cutting at a fixed angle.

17657. (W. E. H. Berwick.)—Two similar conics have third order contact with a curve at a point where the curvature is ρ^{-1}. If l_1, l_2 are the lengths of their semi-latera recta, prove that

$$(\rho^2/l_1l_2)^{\frac{2}{3}} = [(\rho/l_1)^{\frac{2}{3}} + (\rho/l_2)^{\frac{2}{3}} - 1][1 + \tfrac{1}{9}(d\rho/ds)^2].$$

17658. (R. F. Davis, M.A.)—Prove that from any point of the straight line $y = 0$ two tangents at right angles to each other can be drawn to the curve

$$y^4 + y^2(-2x^2 + 10ax + a^2) + x(x + 2a)^3 = 0,$$

and roughly indicate the shape of the curve.

17659. (E. R. Hamilton, B.Sc.)—A point P is taken on a moving tangent TP to some plane curve, such that its distance from the point of contact is constant. Find the locus of P given that of T.

17660. (Professor Neuberg.)—Appelons quasi-normale en un point M d'une parabole la symétrique MN′ de la normale MN. Démontrer que par un point quelconque P il passe trois quasi-normales PM_1, PM_2, PM_3, et que le cercle qui passe par leurs points d'incidence M_1, M_2, M_3 passe par le sommet de la parabole.

17661. (Professor E. J. Nanson.)—Given in a plane four points and a line, the four conics each having three of the points for a self-conjugate triad, and the fourth as pole of the given line, meet the given line in the same two points.

17662. (W. N. Bailey and C. V. L. Lycett.)—Two conics S and S′ meet at A, B, C, and D, and the tangents to S at A and B meet at a point O on S′. If P is any point on S′, show that the point of intersection of OP and the polar of P with respect to S lies on CD.

17663. (Professor R. W. Genese, M.A.)—The equation in areals to the perpendicular from the orthocentre of the triangle of reference on any line $l\alpha + m\beta + n\gamma = 0$. is

$$(m-n)\cot A.\alpha + (n-l)\cot B.\beta + (l-m)\cot C.\gamma = 0.$$

If P, Q, R denote the coefficients in this equation, then the equation to the perpendicular from any other point α', β', γ' is

$$\begin{vmatrix} \alpha, & \beta, & \gamma \\ \alpha', & \beta', & \gamma' \\ Q-R, & R-P, & P-Q \end{vmatrix} = 0.$$

17664. (W. F. Beard, M.A. Suggested by Question 17594.)—ABC is a trisngle, O its circum-centre, S its Symmedian point; points P, Q, R are taken in BC, CA, AB, such that the triangles AQR, BRP, CPQ are equal. Prove that the eommon point of the circle AQR, BRP, CPQ lies on the circle on OS as diameter.

17665. (J. M. Child, B.A., B.Sc.)—Give a "ruler and compass" construction for the solution of the pair of simultaneous equations

$$\left.\begin{aligned} x^2 - a^2 &= 2by \\ y^2 - b^2 &= 2ax \end{aligned}\right\} \begin{aligned} a &> 0, \\ b &> 0, \end{aligned}$$

showing that there are two real and two imaginary pairs of values for x and y.

17666. (D. Biddle.)—Construct a plane triangle such that the in-circle and the three portions outside the latter shall be in geometrical progression, as to their areas.

17667. (C. E. Youngman, M.A.)—In ABC, if the pedal lines of D, E, F form a triangle PQR, the circum-centre of PQR lies midway between the orthocentres of ABC and DEF, and its circumradius is the sine of half the sum of the arcs AD, BE, CF. For instance, when AD + BE · CF = semi-circumference of ABC, the triangles DEF and PQR are equal.

17668. (F. G. W. Brown, B.Sc., L.C.P.)—If β = Brocard radius, d = distance between Brocard points, and R = circumradius of a triangle, show that

$$d^2(R^2 - \beta^2)^2 = 3R^2\beta^2(R^2 - 4\beta^2).$$

17669. (Professor J. C. Swaminarayan, M.A.)—The medians of a spherical triangle ABC are inclined at angles θ, ϕ, ψ to the sides which they bisect. Prove that

$$\cot\theta \operatorname{cosec}\tfrac{1}{2}(b+c) + \cot\phi \operatorname{cosec}\tfrac{1}{2}(c+a) + \cot\psi \operatorname{cosec}\tfrac{1}{2}(a+b) = 0.$$

OLD QUESTIONS AS YET UNSOLVED (IN OUR COLUMNS).

14420. (Professor G. B. Mathews, F.R.S.)—Let p be any odd prime:

$$X = (\tfrac{1}{2}p)^{\frac{1}{2}} + (\tfrac{3}{2}p)^{\frac{1}{2}} + (\tfrac{5}{2}p)^{\frac{1}{2}} + \ldots + \{\tfrac{1}{2}(2p-5)p\}^{\frac{1}{2}} + \tfrac{1}{2}(p-1),$$
$$Y = (p)^{\frac{1}{2}} + (2p)^{\frac{1}{2}} + (3p)^{\frac{1}{2}} + \ldots + \{(p-2)p\}^{\frac{1}{2}},$$

where only the integral parts of the surds are to be taken; thus, if

$p = 3, \qquad X = (\tfrac{3}{2})^{\frac{1}{2}} + 1 = 2, \quad Y = (3)^{\frac{1}{2}} = 1,$

and so on. Prove that, when p is of the form $4n+1$, the integers X, Y are equal; but, if p is of the form $4n+3$, X is greater than Y.

Examples:— $p = 3, 5, 7, 11, 13, 17, 19,$
$X = 2, 8, 20, 62, 88, 160, 206,$
$Y = 1, 8, 19, 59, 88, 160, 203.$

14435. (R. C. Archibald, M.A.)—Find the equation of the cardioide in trilinear co-ordinates, and show that its equation in Boothian co-ordinates, cusp origin, is $27a^2(\xi^2 + V^2) = 4(1 + a\xi)^3$.

14598. (Professor Morley.)—A string is attracted to a centre O, according to Newton's Law, and rests over two pins equidistant from O. Prove that the least length of the string is $2r(1+\theta)^2$, where r is the distance of a pin from the centre, and 2θ is the angle (supposed < 2) which the pins subtend at the centre. [The curves concerned are considered in an article in the *Annals of Mathematics*, October, 1899.]

14640. (R. P. Paranjpye, B.A.)—A pseudo-periodic function $\phi(u)$ satisfies the equations

$$\phi(u + 2\omega) = \phi(u) + 2\alpha, \quad \phi(u + 2\omega') = \phi(u) + 2\beta,$$

and has no essential singularity at a finite distance. Find its most general expression. [α and β are any constant quantities.]

14702. (H. A. Webb.)—A stream of incompressible fluid is projected uniformly vertically upwards, *in vacuo*, from a pipe with a horizontal circular nozzle. Show that the diameter of the fluid at any point varies inversely as the fourth root of the depth below the horizontal plane in which it comes to rest, and that in this plane the fluid is in a state of infinite dispersion. [This seems to be the theoretical explanation of the mushroom-like appearance of the cloud of dust over an active volcano, and also of the great distance to which the products of an eruption are sometimes carried.]

14718. (Rev. Prebendary Whitworth, M.A.)—A. has £m and B. has £n. They play for pound points until one of them has lost all his money. If α and β be the respective chances that A. and B. win any point, the expectation of the number of points played will be $[n\alpha^n(\alpha^m - \beta^m) - m\beta^m(\alpha^n - \beta^n)]/[(\alpha-\beta)(\alpha^{m+n} - \beta^{m+n})]$.

NOTICE TO CORRESPONDENTS.

It is requested that all Mathematical communications should be sent to the Mathematical Editor,

Miss Constance I. Marks, B.A., 10 Matheson Road, West Kensington, W.

THE LONDON MATHEMATICAL SOCIETY.

Thursday, December 11, 1913.—Prof. A. E. H. Love, F.R.S., President, in the chair.

Prof. S. B. Maclaren was elected a member.

The President referred to the deaths of Mr. Morgan Jenkins (Secretary, 1866–1894), Prof. Sir Robert Ball, and Prince Camille de Polignac. It was agreed that a letter of condolence be sent to the relatives of Mr. Morgan Jenkins.

The following papers were communicated:—

"On the Linear Integral Equation": Prof. E. W. Hobson.

"Generalized Hermite Functions and their Connexion with the Bessel Functions": Mr. H. E. J. Curzon.

"Limiting Forms of Long Period Tides": Mr. J. Proudman.

"On the Number of Primes of the same Residuacity": Lt.-Col. Cunningham.

"Some Results on the Form near Infinity of Real Continuous Solutions of a certain Type of Second Order Differential Equation": Mr. R. H. Fowler.

"The Potential of a Uniform Convex Solid possessing a Plane of Symmetry with Application to the Direct Integration of the Potential of a Uniform Ellipsoid": Dr. S. Brodetsky.

"The Dynamical Theory of the Tides in a Polar Basin": Mr. G. R. Goldbrough.

"Proof of the Complementary Theorem": Prof. J. C. Fields,

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MEMBERS' MEETING.

A Meeting of Members of the College will be held at the College on Wednesday, the 18th of February, at 8 p.m., when Mrs. PHILIP SNOWDEN will deliver a lecture on "Peeps at Parliament through a Woman's Eyes."

LECTURES FOR TEACHERS.

The First Course of Lectures (Forty-Second Annual Series), by Prof. J. ADAMS, M.A., B.Sc., LL.D., F.C.P., on "Educational Psychology," will commence on Thursday, the 5th of February, at 7 p.m.

The aim of this course is to meet the needs of teachers who wish to improve their acquaintance with the psychological principles that underlie their profession, whether they have any examination in view or not. The lecturer will treat his subject in such a way as to fit in with the requirements of the College in connexion with its examinations for the Associateship, the Licentiateship, and the Fellowship. Guidance will be given for private study and reading, and problems will be set for such students as desire practice of this kind. Every opportunity will be taken of making practical applications of psychological principles to the ordinary work of the classroom.

For Syllabus, see page 111.

EXAMINATIONS.

Diplomas. — The Summer Examination of Teachers for the Diplomas of the College will commence on the 31st of August, 1914.

Practical Examination for Certificates of Ability to Teach.—The next Practical Examination will be held in February, 1914.

Examination of Foreign Teachers for Certificates of Proficiency in English.—These Examinations may be held at any date.

Certificate Examinations. — The Midsummer Examination for Certificates will commence on the 29th of June, 1914.

Lower Forms Examinations.—The Midsummer Examination will commence on the 29th of June, 1914.

Professional Preliminary Examinations.—These Examinations are held in March and September. The Spring Examination in 1914 will commence on the 10th of March.

Inspection and Examination of Schools.—Inspectors and Examiners are appointed by the College for the Inspection and Examination of Public and Private Schools.

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CONTENTS.

	Page
Leader: Medical Inspection in Secondary Schools	61
Notes	62
Richard Wormell—New Year Honours—Mr. Sadler on Private Schools — Inspection of Private Schools — Organization—Teachers' Conferences—The Register—The Head Masters' Association—The Right of Hearing—Deputation to the Board—Herefordshire—Spelling Reform—The Basis of State Grants—A Generous Endowment—A Psychological Exchange—The Social Meeting.	
Summary of the Month	65
Richard Wormell	66
State Grants from the Woman Teacher's Point of View. By Sara A. Burstall	67
The Basis of Grants	68
Resolutions passed at Meetings of Educational Bodies in January 1914	69
Annual Meeting of the Mathematical Association	70
The Modern Language Association	71
Current Events	72
The Present Educational Discontent. By A. C. Benson	75
Co-operation between the School and the Employer. By Cloudesley Brereton (*concluded*)	77
The Position of Private Schools in a National System of Education	79
School Lighting. By Daniel H. Ogley	84
Reviews	86
Outlines of Education in England (Jackson); Wings and the Child (Nesbit); School Hygiene (Dresslar); Euripides and his Age (Murray).	
General Notices	87
Publications Received	89
Mathematics	90
List of Candidates who have passed the Christmas Certificate and Lower Forms Examinations of the College of Preceptors	99

The Educational Times.

MEDICAL INSPECTION IN SECONDARY SCHOOLS.

Medical inspection is gradually making its way into secondary schools, as we learn from Dr. Newman's Report for the year 1912, which has just been published by the Board of Education. So far as the official knowledge of the Board goes, medical inspection is provided in the case of 122 secondary schools throughout the country, or in about one-eighth of the total number of such schools upon which grant is paid. But it is likely, as the Report states, that many schools are affording facilities for medical inspection of which the Board has no cognizance. With regard to public schools and proprietary schools, "there is in most cases no routine inspection as yet"; but pupils are required to produce a health certificate each term, and, in boarding schools, there is usually a medical officer. Wellington, Sherborne, and Giggleswick are mentioned among public schools, and Wycombe Abbey amongst proprietary schools; at the latter "a complete scheme of inspection is provided."

In the secondary schools maintained by Local Authorities, medical inspection has been instituted by the County Councils of London, Essex, Northampton, Cambridge, Nottingham, Berkshire, Cumberland, the Isle of Ely, and the Isle of Wight, and by the Boroughs of Brighton, Leeds, Halifax, Leicester, Leamington, Sheffield, and Stockport. In this group of schools many of the pupils come from the public elementary schools, and it is a simple matter to hand on the medical record. In London a complete examination is made of all entrants, and subsequent examinations are made as required. Each pupil is examined once a year, and each school visited once in six weeks. A record is kept. In Leeds, Halifax, Sheffield, and Bradford a routine medical inspection similar to that in the elementary schools is made in the secondary schools. The scope of the examination varies in other areas. In Essex all entrants are examined subject to the parents' consent.

In endowed schools, other than the public schools, "a complete examination with a suitable record has been made of all entrants in a number of cases." Manchester Grammar School is instanced as carrying out this procedure, while at the Manchester High School for Girls the examination has been extended to leavers and special cases. The Central Foundation Girls' School, London; the Haberdashers' Girls' School, Hatcham; Owen's Boys' School, Islington; Lilley and Stone Girls' School, Newark, are mentioned as providing medical inspection.

The Medical Officer for Essex supplies a comparison as to height and weight between the children attending elementary schools and those in secondary schools in the county. Two hundred and ninety-eight boys of the age of twelve in secondary schools were found to be of the average height, in centimetres, of 144·8—*i.e.* 3·8 in excess of the average at that age of the children in the Essex elementary schools. The similar excess in weight, in kilogrammes, was 2·3. Among 461 girls examined the corresponding excess in height was found to be 2·5 (centimetres), and in weight 2·8 (kilogrammes). One medical officer states of the secondary schools in his district that "improvement in physique has gone *pari passu* with the improvement in the midday meal." In another school, we are told, "the experiment has been made of insisting on all children having a hot dinner, either at home or at school, instead of the unappetizing cold repast of sandwiches and bread and butter formerly adopted by many. The greatest improvement in physique was found among the younger children."

Dr. Newman finds considerable encouragement in what has been done generally during the six years of organized medical inspection. He thinks it important that medical inspection should be viewed in its right perspective, as auxiliary to education. "It is clear that no education can be satisfactory if the body and brain of the child be out of health, undeveloped, impaired, or disabled; but it is likewise evident that something much more than physical fitness, or even physical education, is necessary to

the full equipment of the adolescent or adult. Medicine is the servant, and not the master, of education." His Report deals in the main with the inspection in elementary schools; but in view of the growing connexion between elementary and secondary education, the information given and the views expressed are not without their value in reference to the latter group. It is true of secondary as well as of primary schools that "the intimate relations between school hygiene and education is becoming recognized and its application understood." "In other words, the school medical work and the issues arising therefrom are beginning to form a living and integral part of the educational system of the country."

NOTES.

Richard Wormell.

Dr. Wormell was in his seventy-sixth year when death claimed him. We give in another column some account of the many and effective activities of his remarkable life. His exceptional powers as a teacher will be remembered with affection by the many thousands of boys who came under his influence. To members of the College he was best known as one of the triumvirate who governed that institution through a long period of successful years. Members spoke of the "triumvirate," but in reality there were four: Mr. Charles Hodgson, Secretary; Dr. Wormell, President; Mr. Eve, Dean; and Mr. Pinches, Treasurer. For many years these four men faced the members at the half-yearly meetings as the representatives of the College. Within three years we have had to record the death of each of the four, Dr. Wormell the last. The name of the editor of a paper does not usually become widely known, and many members of the College may be unaware that Dr. Wormell found time to edit *The Educational Times* during ten years, from 1883 to 1893.

New Year Honours.

The list of New Year Honours contains several names of especial interest to the teaching profession. Mr. James Bryce has been raised to the peerage under the title of Viscount Bryce of Dechmont in the County of Lanark. As Mr. Bryce, his name has long been familiar in the educational world, and his grasp of educational problems was shown in the address he gave at the opening of the Teachers' Conference in the University of London. He was a Regius Professor for twenty-three years. The Education Officer of the London County Council was an assistant master in secondary schools for some years, and now receives a well deserved knighthood—Sir Robert Blair. A knighthood has also been conferred on Ernest Rutherford, Langworthy Professor in the University of Manchester. The Order of Merit has been conferred on Sir Archibald Geikie. Mr. H. W. Orange, of the Board of Education, adds the letters "C.B." to his name. Prof. John Shand, of the University of Otago, receives the honour of C.M.G. But we do not find the name of any person, either man or woman, who receives an honour for distinction in teaching. In France the Cross of the Legion of Honour has just been awarded to Prof. Edith Williams, who has done so much to organize the teaching of French to English students in Paris.

Mr. Sadler on Private Schools.

We give in another column a report of the meeting organized by the College and the Private Schools Association to discuss the position of private schools in a national system of education. At this meeting Mr. Sadler, Vice-Chancellor of the University of Leeds, raised the broad issues of the matter. It was better in the long run, he thought, for the security of the State, that a measure of freedom should be allowed to the citizens. One reason for the State control of education was to prevent the teaching of political principles hostile to the State. So far as he was able to judge, more was to be gained in England by freedom than would be gained by restriction. An objection to complete State control was that such a system tended to stereotype curriculum, and we are not now in the position of the Prussian administrators of a hundred and twenty years ago who felt quite certain that they knew the proper subjects of study in schools and the order in which they should be taken. To-day we had no such feeling of certainty, and it was only by allowing experiments in private schools that we could make progress.

Inspection of Private Schools.

With regard to inspection, Mr. Sadler suggested that where a private school filled a place in the national system of education, which must be filled in the public interest, that school must submit to inspection and comply with the requirements of the public authorities. But he pointed out that where a private school existed as a protest against a dominant ideal, inspection would be a peril to its very being. The number of schools in this latter category will probably never be great, and we anticipate that there will always be a few schools outside the national system, just as probably there will always be a few unregistered teachers. But the majority of private schools claim to take their share in the provision of secondary education for the area in which they are situated. Such schools must be registered and inspected. The inspection will be limited, in all probability, to two matters, buildings and staff. The former must conform to the demands of hygiene, and the latter must be academically qualified. The classification of the pupils, the subjects of study, the methods of teaching, and all such internal matters may be left to the discretion of the school.

Organization.

To most people organization up to a certain point is helpful; beyond that point it becomes deadening and destructive of energy. The first difficulty is to decide the point

at which organization ceases to have a beneficial influence. And the difficulty is further complicated by individual differences. One man, perhaps, works best when he is organized up to 100 per cent.; another needs absolute non-interference if he is to do his best work; another can stand 30 per cent. of organization and 70 per cent. of freedom. The variety is infinite. Hence arises the danger of government by Boards, especially in a matter like teaching, where the personality of the teacher is of prime importance. A Board—at a distance, and controlling thousands of teachers individually unknown to the Board—can only issue general regulations, to be imposed alike on all. The Board cannot go into individual peculiarities. The responsible head of a school, knowing his staff personally, can do this, and can give to each teacher just that amount of freedom and that amount of help by regulation that is required. But the bugbear of control by the Board of Education is much exaggerated. We have seen no regulations that hamper unduly the liberty of the school.

Teachers' Conferences.

Something like thirty societies of teachers have held meetings during the last month. Many of the meetings ran into several sessions. The attempt to give a potted account of all these would liken our columns to a compendium of historical facts. We could give a list of subjects and speakers, and nothing else. Fortunately, the daily papers make the attempt needless. The interest taken by "the man in the street" in education is indicated in the long reports that have appeared in many newspapers. We have thought it helpful to give in full the resolutions passed by those associations that make public a definite line of policy, as they show the mind of teachers on points of professional and administrative importance. We have chosen one or two meetings for fuller report, and in this column we deal with questions of outstanding interest. For the rest we must content ourselves with saying that a vast number of important speeches were delivered and many valuable discussions held. The general result of the conferences has been to bring teachers nearer to one another, to deepen professional life, and to instruct the public on educational matters.

The Register.

One note of the January meetings has been the almost universal welcome given to the Teachers' Register. Dr. Rouse thought the guinea fee would prove prohibitive in some cases, and Dr. Sibly expressed some fear lest the Registration Council might become a tyrannical force in the production of uniformity. Except for these criticisms, the chorus of approval, so far as we have heard, was general. The new Register starts with much more encouragement than was accorded to its predecessor. We learn that many thousands of inquiries for forms have already been received, and the Council will be kept busy sifting the applications under the temporary regulations. It is satisfactory to note that applications are being received from all quarters, high and low, rich and poor. Many ex-teachers now holding positions of distinction are also applying. Whatever may happen at the end of three years, for the present any teacher who wishes to be represented on the Council must be a member of one or other of the professional bodies sending representatives. This fact will probably bring a large influx of members to all societies. At the end of the three years it is possible that registered teachers will be called upon to elect the Council.

The Head Masters' Association.

We look naturally to the Association of Head Masters for a definite lead in matters political, and we are not disappointed. In another column will be found an important series of resolutions on the subject of the forthcoming Education Bill and on examinations in secondary schools. Besides these questions, the Association advises that seventeen should be the minimum age for entrance to a University. This seems to us a most important reform. It is misleading that a pupil should qualify for matriculation and then be asked to remain at school. Another reform advocated is the provision from public funds of a larger number of scholarships to enable pupils of slender means to complete their education in a University. When such a system of scholarships has been established it may be possible to hope that every candidate for a University degree may have the advantage of a course of study at a University. In the meantime the Association acted wisely, in our opinion, in deciding that the time had not yet come for the abolition of external examinations for degrees. We are not quite sure that the time will ever come. The freedom which we desiderate for private schools in the secondary sphere may prove just as necessary in the University sphere.

The Right of Hearing.

The Association of Assistant Masters has not, so far as we know, made public at its January meeting any line of policy in reference to the forthcoming Education Bill, but no doubt the Council has already formulated certain views which will be issued at an opportune moment. The Association has again to put forward the claim that assistant masters served with a notice of dismissal should be heard by the governors before such dismissal takes effect. It seems such a piece of elementary justice that we fail to understand the opposition or the difficulty in making provision for the hearing. An unexpected grievance is laid bare in another resolution that condemns the action of some Education Authorities in putting out assistant masterships to the lowest tender. Such Authorities are carrying out the principle of buying in the cheapest market; but it is not certain that the buyer knows a sound article when he makes the purchase. We may take comfort in the knowledge that salary scales, low as they are, make such a condition of competition impossible. And salary scales are, we believe, becoming more common.

Deputation to the Board.

The meeting of educational bodies that took place at the College of Preceptors in October of last year decided to ask the Government to receive a deputation to hear arguments for increased grants from public funds. This deputation was received at the offices of the Board of Education on January 14. Sir John McClure introduced the deputation, and laid before Mr. Pease the resolution passed at the October meeting. Mr. Pease admitted the need for increased grants, and said that the Government fully recognized the importance of the matter, and that the views of the deputation would be considered with sympathy. It was hoped that the Prime Minister and Lord Haldane would also be present, but no doubt Mr. Pease will lay before his colleagues in the Cabinet the claims of the deputation. Mr. Pease doubted if the Chancellor of the Exchequer could see his way to raise the necessary funds. On Mr. Lloyd George's recent holiday in the South, one of his companions was the head master of a large secondary school. It is understood that several conversations on educational needs took place, so it is possible that the Chancellor may be convinced of the necessity of raising additional funds.

Herefordshire.

The notices of resignation on the part of teachers in elementary schools in Herefordshire expired, we believe, on the last day of January. It seems quite clear that the Education Committee of the county is not prepared to grant the salary scale that is demanded by the teachers, for the County Education Secretary is advertising vacancies in the *Daily Mail*. We suppose that the *Schoolmaster*, the usual medium of such advertisements, was, under the circumstances, not asked to insert the notice. The advertisement says that "several head mistresses" at £80 to £100, "several head mistresses" at £90 to £115, "several head mistresses" at £100 to £130, "several head masters" at £100 to £130, "several head masters" at £120 to £150, "several uncertificated teachers," and "several supplementary teachers" are required by February 1 and later. Two or three years ago it was stated that a large number of qualified teachers in London were unable to obtain posts and had taken up other careers. Perhaps some of these will read the advertisements in the *Daily Mail* and be inclined to apply.

Spelling Reform.

The campaign of the Simplified Spelling Society has passed beyond the stage of ridicule. A new movement is usually greeted at first with either amused toleration or outspoken jeers. The next stage is, supposing it is not killed by ridicule, opposition from those who are interested in maintaining things as they are and those who fight against any change. This is the stage through which the reform of spelling has now to go. Sir William Ramsay is not alone in arguing that, if we reform our spelling, English will undoubtedly become the universal language. Prof. Gilbert Murray awakens an echo in many minds when he tells us that the present system of spelling is especially injurious to children in two ways. Our rules of spelling, he says, spoil a child's ear, so that he cannot tell what sound he is producing, or when two sounds are the same or different. Secondly, they spoil his reasoning powers and his faith in clear thought by fixing his mind on a pseudo-system of rules, in learning which clear thought would lead to disgrace. We hope that any system of reform that may be put forward will not err on the side of pedantry. The first step is to rid ourselves of the worship of the present way of spelling, and to introduce changes a few at a time.

The Basis of State Grants.

We have given very fully Mr. Cholmeley's arguments in favour of a change in the basis of State grants for education, according to which the unit of assessment would be the teacher, and not the pupil. We have expressed our approval of this proposal, mainly on the ground that the present system works hardly for the small school. But neither the Head Mistresses nor the Assistant Mistresses are in favour of a change in the direction indicated in Mr. Cholmeley's articles. We are desirous of giving our readers both points of view, and we would call especial attention to an article from Miss Burstall, which we have been fortunate in securing. We have also reprinted a memorandum on the same subject that has already been issued by the Association of Assistant Mistresses, but which many of our readers may not have seen. We would support no proposal that seemed to us to accentuate the existing unreasonable differentiation in salaries as between men and women, or to have an adverse effect upon girls' schools. Perhaps the publicity that has already been given to the discussion may have an effect in raising the salaries of assistant mistresses. To point out an injustice is the first step in the remedy.

A Generous Endowment.

We welcome with especial satisfaction the munificent gift of £105,000 which Sir Hildred Carlile has made to the Endowment Fund of Bedford College for Women. In making the offer the donor said: "I should be grateful if it is considered as being in memory of my mother, Maria Louisa Carlile (Mrs. Edward Carlile). The work and success of this valuable institution would both have been alike highly prized by her." Last summer the Queen opened the new home of the College in Regent's Park. Accommodation was provided for a hundred resident students and for nearly four hundred day students. But the work was, to some extent, hampered by want of endowment. It is, as a rule, more easy to raise money for buildings than for salaries, and that is why Sir Hildred's gift is so wise and timely. It will provide an income of between £3,000 and £4,000 a year—a sum that will go far to relieve the administrators of the College from financial anxiety. The gift is believed to be the largest that has ever been made to

the education of women in this country. The force of example is great. The need of Girton College is urgent.

A Psychological Exchange.

THE success of the Teachers' Conference at the University of London has brought encouragement to the Teachers' Guild to persevere in an undertaking which, as we learn from the newspapers, has been under discussion for some time by the Council of the Guild. The proposal is to establish a permanent Secretariat for Educational Conferences with the view to the formation of a learned society representative of the scientific and psychological aspects of education. In short, an annual meeting on the lines of that of the British Association, with a permanent office engaged in the collection of information. This would form a sort of educational exchange at which the psychological researches carried on at the different Universities would be noted, compared, tabulated, and issued. The proposal is a valuable one, and comes at a time when, for two reasons, it is likely to be successful. The growth of professional feeling makes united action more feasible; and the large amount of research work that is being carried on in educational fields gives promise of helpful results.

The Social Meeting.

ON January 21 the College was temporarily transformed into gaily decorated reception rooms, and the members spent an enjoyable social evening. Mr. and Mrs. Frederick Chester are always amusing, and their humour has the quality of cleverness. The singing of Miss Kate Moss, who accompanied herself on the violin, was especially appreciated, as were also Mr. George Clues' songs. The rooms were well filled, but good management prevented any uncomfortable crowding. The thanks of members are due to the committee and staff for the excellent arrangements that were made. On the third Wednesday of this month Mrs. Philip Snowden will lecture on "Peeps at Parliament through a Woman's Eyes," a lecture that promises to be of particular interest.

SUMMARY OF THE MONTH.

IT was the fashion to think that liberty meant a relaxation or abandonment of the half-military discipline that was customary in schools. The Parents' Union, however, aimed at imparting the ease, the final liberty, which came of habits of self-control, and they could not forgo discipline in the schoolroom. . . . Undue confinement was unendurable, but discipline was needful. Rule was a component part of liberty—rule from without leading up to rule from within. Education must therefore afford discipline and regulated emancipation—the freeing of the scholar from imposed rule in proportion as he showed himself able to rule himself. Education that confused the issues of life and let a man believe himself free to think what he pleased, without perceiving that thought must be controlled by self-existing axioms as certain as those of Euclid, sent him out a candidate for bondage. Truth—that is, right knowing, clear thinking, and a sense of the proportion of things—was that which gave liberty.—From a paper by Miss Charlotte Mason, read at the P.N.E.U. meeting on January 9.

THE educational ideal, especially in childhood and youth, was to allow relations with the greatest possible variety of things to be set up; to allow something to caprice and much to inclination; and to delay consistency for a time. Many men and women had never reached a healthy mental balance, because in childhood they were fed on second-heated scraps of knowledge instead of vitalizing ideas, or had been too early started on a process of specialization. They must all be familiar with instances of children of six to ten years who were nervous, irritable, and unmanageable. One person said, "Let him run wild," and another, "Don't excite him with lessons," a third, "Don't overwork his too active brain." The child was probably in reality suffering from intellectual starvation, not from over-repletion, and the chances were that a full diet of wholesome ideas was what he really needed.—Dr. Helen Webb at the P.N.E.U. meeting on January 9.

IN addition to the demands of the amateur and the specialist there was a new class of students growing up. They knocked at the doors of the Universities ten years ago when the Workers' Educational Association was founded, and the doors of the Universities were opened, or partly opened, to them five years ago when the tutorial classes for working people were initiated. They constituted a University in themselves already, as far as numbers were concerned, for there must be now more than 3,000 of them in England alone. It was true that up to the present the chief, indeed the overwhelming, demand had been for classes in political economy, economic history, and sociology; but a demand was beginning to arise for literature, history, and science, and it would not be long, he thought, before the desire to know the views of our foreign contemporaries in their subjects of study would create a demand on the part of many working people for instruction in foreign languages. A great and growing need was arising throughout the whole community for knowledge quite outside the ordinary lines of the recognized systems, and it would be for the Universities to consider how they could best satisfy this need.—Sir H. Miers in his address to the Modern Language Association.

WITH the present average salary of £121 a year in the grant-aided schools, there was practically no margin for recreation or even for the purchase of books. The men claimed larger salaries on the plea that a better supply of first-rate people might be drawn into the profession. Women claimed the same, first and foremost on the ground that the energies of those who were in already might be set free for their proper work. Yet, in spite of this, the majority of them would put freedom in their work and the absence of hampering restrictions even before increased salaries. With regard to educational organization she deprecated any curtailment of the powers of the existing Local Education Authorities. During the last ten years these bodies had laboriously acquired experience and learnt by their mistakes, and any such step would be disastrous as well as wasteful. Might it not be possible, she asked, that some scheme should be developed in the future which should bring the teachers and the Local Education Committees into closer contact and enable them to co-operate more freely?—Miss Drummond, President of the Association of Assistant Mistresses.

MR. H. HOLMAN, formerly Inspector of Schools, pointed out some dangers concerning hand-work education. Perhaps the first and greatest was the idea that they had at last found the universal specific for all educational ills. Manual teaching was not going to transform education, however much it would reform it. It was not going to do away

with reading, writing, and arithmetic, but it would deprive them of their usurped and false pre-eminence. He claimed, however, that these subjects would not be less but better taught because of the introduction of hand-teaching. Science, literature, music, and all other regular school studies would also not lose but gain, and physical training would gain most of all. He warned them, however, to beware of the idea that manual teaching was going to relieve school life altogether of its monotony and make it interesting, for such an assertion was an outrageous insult to their fellow-teachers. The danger that the general public would try to put handwork teaching on a vocational instead of an educational basis was a very real and serious one.—At the meeting of the National Association of Manual Training Teachers.

The International Commission on Mathematical Teaching, of which the British Members are Sir George Greenhill, Prof. E. W. Hobson, and Mr. C. Godfrey, will meet at the Sorbonne, Paris, on April 1-4, 1914, to discuss (1) the results obtained by the introduction of the Calculus into the higher classes of Secondary Schools, (2) the place of Mathematics in higher Technical Education. The general opening meeting of the International Conference on Mathematical Teaching will take place on April 2, at 9.30 a.m., under the presidency of M. Lucien Poincaré, Director of Secondary Education, when Prof. P. Appell will welcome the members, and Prof. F. Klein, President of the Commission, will deliver an address. Prof. Emile Borel and Prof. d'Ocagne will read papers. Conference tickets (gratis) and prospectus may be obtained on application to Mr. H. H. Ellis, Joint Hon. Secretary, Mathematical Association, 12 Gloucester Terrace, Hyde Park, London, W., before February 26. Other meetings, for which tickets may be obtained, include those of the French Philosophical Society, April 6-8, the French Physical Society, April 15-17, the Congress of French Scientific Societies, April 14-18. The French railway companies will grant a 50 per cent. reduction to holders of conference tickets.

RICHARD WORMELL.

September 17, 1838—January 6, 1914.

By the death of Dr. Wormell, which took place at his house, The Grange, Roydon (Essex), the educational world loses one of its most remarkable and outstanding figures. Others, in the last few years, may have come more to the front, and have a wider circle of popularity, but tracing back Dr. Wormell's seventy-five years of life, it would not be easy to parallel the story of his educational achievements in Great Britain, if, indeed, in any European country. In his own personal intellectual development, without any of the advantages of an early start beyond that of an ordinary pupil-teacher, he found his way to Borough Road Training College in the old Southwark days. Then, after entering on teaching work, he still continued his studies, with intense concentration, and completed a brilliant academic career in the University of London by taking the Gold Medal in the M.A. Examination in Mathematics and afterwards the D.Sc. degree. Though he attended courses of lectures at University College, it can hardly be too much to say that he counts as one of the most distinguished of external, and mainly self-taught, students of the University, though he would himself have been one of the first to say that the self-taught man has had the worst of all teachers. No man could be more conscious, moreover, of the cost of his great academic feats, for he had "scorned delights and lived laborious days"—and not only burned the midnight oil, but constantly and regularly studied long after midnight. No doubt his absorbing devotion to study combined with his teaching duties planted the seeds of later troubles in his physical health, which accompanied his extensive professional and public work, though it was bravely concealed by the fascinating geniality and *camaraderie* of his disposition, and the developed, determined self-control in carrying out his purposes.

In 1866, at the age of twenty-eight years, Wormell first entered the Middle Class School, Cowper Street, E.C., as mathematical master. For seven years he was the first assistant master, and "made the school" from the intellectual point of view. The mathematics, naturally, were soon a remarkable feature of the Cowper Street boy, who could work his way to the Sixth Form. But it would be a mistake to suppose that mathematics were all that Wormell did. The other subjects which the young master took in hand in the Sixth were equally well taught. Indeed, the "old boys" speak of the English literature as having been especially "an inspiration." In 1873, for a year, Wormell became Instructor in Mathematics in the Royal Naval College, Greenwich. In 1874 he was called back to take the Head Mastership of Cowper Street School, and this post he then held till his retirement, on a pension from the governors, in 1900. The name of the school was an awkward one: The Middle Class Schools' Corporation (Cowper Street School). The original intention of the Corporation, which included most prominent City men, with the Rev. William Rogers (familiarly known as "Hang-theology" Rogers) as Secretary, had been to establish the Cowper Street School as a central and model school, and then to found similar schools in various suburbs of London. But, under Wormell, the school became too successful to risk branches under new and unknown Heads, and economy pointed rather to let the Cowper Street School grow even to unwieldiness. It reached at last to 1,350 boys, probably a record number for a Secondary School. As often as not it was called "Dr. Wormell's School," and, in spite of the famous and wealthy men who were its governors, it was no wonder that the permeating personality of its Head Master furnished the name of the school to outsiders.

Wormell's professional activity was never merely self-centred. In the very year that he entered Cowper Street School he joined the College of Preceptors (November 3, 1866), and in 1875 he became a member of the Council. In 1879 he was chosen as a Vice-President. He remained in this position till 1905—a period of twenty-six years, when he was chosen President, and he held this highest post till 1908. He was an examiner to the College of Preceptors for many years in Mechanics and Natural Philosophy. For ten years, too, he was the Editor of *The Educational Times* (1883-1893). Though so closely identified with the College of Preceptors, to the affairs of which he gave the most unremitting care and the sagest of counsels, he was deeply interested in all the progressive educational movements, and the cause of the training of teachers and the winning for teachers of a professional standard were the central points of his public efforts.

Identified as he was with the College of Preceptors during a long stretch of a most important period of its development, he took care to see that the views of the College were fully brought before the Royal Commission on Secondary Education in 1892, of which he was appointed a member, and especially interested himself in pointing out various educational reforms that had originated from private schoolmasters, and outside of officially instituted and subsidized public schools. In 1895-6 he was elected as President of the Head Masters' Association.

But in spite of all administrative work as Head Master, and his public work in the College of Preceptors and elsewhere, it should be emphasized that Wormell was as brilliant a teacher as he was a student. In one of his attacks of physical pain he remarked, "There are only two ways in which I can forget myself. One is in solving a puzzling mathematical problem; the other is in getting a class before me to teach." No one who ever saw Wormell teaching, when he was in form, will forget his marvellous intuition and inspiration. Never did teaching look easier or a more attractive occupation. He would give a lesson in a

"gallery" classroom to a couple of hundred boys with the ease and effectiveness, and command of concentration, that ordinarily a good teacher would bring to bear on twenty or thirty. Or again, on occasion he would have as many as four hundred boys gathered in the large Hall, with the teachers of the respective classes to which they belonged, and himself give a "model" lesson, showing the method, or rather the spirit, in which he would suggest the teaching, say, of the Scriptures. If the whole of the Inspectorate of the Board of Education and the whole of the Municipal and County Inspectorate could have been brought into an Inspectors' Training College, probably no one man in England could have done more to raise the standard of good teaching at a stroke than Wormell in such a position.

Remarkable as he was in developing and holding together the largest (probably) Secondary School in England, honoured as he was as an educational publicist, he was at his finest and greatest as a teacher in the classroom. He was a "born" and also a "trained" schoolmaster. Both as a student and as a teacher, he was distinguished by his mental selectiveness rather than by comprehensive scholarship. Of the salient point or points of a lesson or of a course of lessons in a subject, he never lost grip, or allowed a class to lose grip. Such textbooks as he wrote, splendidly clear as they are, they but feebly reflect his power of arousing concentrated mental vigour and life in a class. In a supreme degree the Chaucerian description applies to him: "Gladly wolde he lerne, and gladly teche."

STATE GRANTS FROM THE WOMAN TEACHER'S POINT OF VIEW.

By Sara A. Burstall.

The plan for payment in proportion to the salaries of teachers is at first sight extremely attractive, particularly to those who are at their wits' end to find money enough to secure in every type of school an adequate supply of properly qualified teachers. Members of Education Committees cannot demand more from rates: head masters cannot get assistants: the smaller secondary schools are relatively at a disadvantage: classes are huge in elementary schools: while assistant masters not unnaturally desire for their profession the status and the decent livelihood enjoyed by their French and German colleagues.

If only the Board of Education would alter the present basis of grant to one proportional to salaries all the trouble —men think—would be over. Governing bodies and education committees could then well afford to give adequate salaries to a sufficient number of properly qualified teachers, and the problems of our educational system would be solved.

But the two associations formed exclusively of women teachers, the Head Mistresses' and the Assistant Mistresses', have definitely condemned this proposal, in conferences brought together specially to give an opinion on the matter. They regret to differ from their brothers: but they deem the men's associations to be wrong on general educational grounds, and they are aware that their own discernment has been quickened by their perception of the disastrous effect on girls' schools were the new proposals carried into practice. It may be a case where woman's intuition feels for the right action, leaps to the sound conclusion. But we can support our view by arguments, both theoretical and practical, arguments admirably stated by Miss Drummond in the A.A.M. Memorandum.

Firstly, we think that the present basis of grant is right in principle, and largely right in practice. English political instinct has been true in developing this method by which the central authority encourages local effort in education. Schools exist for the pupil, not for the teacher. Each child is valuable to the nation, and it is right that the nation should pay *a* grant on each pupil attending a public school. The present grant is not large enough: but the principle of it is right. Especially is it right in paying the same sum for a girl as for a boy. The State thus declares in the most effective practical way its belief in the value of the potential woman to the State—the State which is founded on homes. To the family the educated girl is not as valuable an asset as the educated boy: she will probably leave it in adult life to enter another family, she cannot under present conditions earn anything like as much as her brother, and the value to the family of her services as the daughter at home bears little relation to her schooling. Families therefore are justified in spending more on the boy's education than on the girl's: the school and college fees may be higher, the masters better paid, so far as the parents' contribution goes. But if a girl's education is right at all—and we have agreed to that principle for more than a generation—it is to the interest of the State that she should have as good an education for her, as the boy's for him. Indeed, if there is to be a difference of kind in their training, and some of us think there should be, the difference would mean a rather more individualized, and therefore a rather more costly, type of schooling than that of a boy. It is worth noting in this connexion that women pay the same degree fees at a University as men, and the same lecture and laboratory fees: nor has any woman's association asked that they should pay less, though every one knows that family resources, and the endowments for girls, are far less abundant. It is a great thing for the whole cause of women's education, and for social righteousness in general, that the State should make no difference in its national grants for education between the value as potential citizens of the girl and of the boy. Whatever else may go wrong, this is right, and we must uphold it.

Secondly, we feel that the danger under the new plan of teachers becoming Civil Servants is real, and the results of such professional fixity deadly. The old phrase about the piper and the tune asserts a fact. We all know how much power the payment of grants by the central authority has given to Whitehall over all the general arangements of schools. As things are, there is enough bureaucratic control, a tendency to uniformity strong enough indeed. So far the influence of the Board has not been exerted to check freedom and initiative, so much as to bring up the general level, and to fertilize the less original regions with new educational ideas. But we don't want much more standardization. Now those who have practical administrative experience, especially outside London, know that if the State were to pay 75 per cent. of salaries, it would inevitably have to lay down some sort of code about teachers, and teaching power. It must deal with the difficult question of the number of pupils to a teacher in different types of schools—a problem which is solved at present for each school by the people on the spot, who presumably know best. It must standardize salaries (which is perhaps an argument for the change in some minds); but this surely ought to be done, if it is done, by the profession itself. We must remember how Mr. Asquith refused to ask Parliament to settle the minimum wage for colliers, and left the matter to local arrangement. It would be a much more difficult and delicate matter to settle for the whole country a scale of teachers' salaries. Again, and this is perhaps the most serious objection from the national point of view, the State would have too great a power in regulating the qualifications and training of teachers: it would refuse to pay salaries for persons whom it might (justly from the central bureaucratic point of view) consider unqualified, but who might be admirably fitted for that particular work as judged by the authority on the spot, who would know all the special conditions. Government departments have no feelings and no soul: how can they have? Local Education Authority offices are sometimes no better. But there is a possibility of personal knowledge and personal consideration locally, which is out of the question with a Government Board handling Treasury money.

There is another aspect of the danger that teachers should become Civil Servants to which Mrs. Bryant, among others, has drawn attention, and which is of considerable importance to the community at large. Government ought not to

have the power to inculcate on the rising generation through the public schools a particular type of thought, opinion, discipline, as is the case in some European countries. There should be preserved independent foci of ideas, of traditions, of originality and variety in education and philosophy. The mind of man must be free. In England we have never eliminated our minorities; we have deliberately retained in our State system denominational schools and colleges, we have left the Universities free, we have made no regulations about private schools: we have bought our freedom with a great price—but it is worth it. There is, however, a tendency manifest in State control of secondary education to eliminate varieties, to make the regulations for grant-aided schools so rigid that important traditional types (like the schools of the Society of Friends) have found it necessary to remain outside the national system if they are to preserve their peculiar tradition. This tendency would act with increasing strength if the State had to pay the greater part of each teacher's salary.

So far we have endeavoured to consider the question from the broad point of view of the education of the whole mass of citizens. The special difficulties of women teachers and girls' schools under the new plan now claim some statement. Obviously it would mean distinct injustice to girls' schools as long as women's salaries are lower than men's. As Miss Drummond shows in the A.A.M. Memorandum, "in order that they (the schools) should just retain their present financial position, an extra grant of two and one-third millions would be needed," all of which would go to boys' schools. Also, if the cost remained what it is, and the grant were raised three and one-third millions, "less than half a million would be devoted to improving the conditions in girls' schools." The smaller and poorer girls' schools would be relatively worse off even than they are at present. We see no prospect for years to come of the salaries for men and women becoming equal: to set up salary scales by the State would only stereotype the inequality. To alter the fraction from 75 to 80 per cent. or even more would have the same effect, and the women teachers will not hear of this as a remedy for their grievances. Give our governing bodies the same amount for educating the girl as for educating the boy, we say, and let us take our chance with them. We shall be safer so than in the hands of the State.

Doubtless the strength of this conviction is due to our sense of powerlessness as citizens: we women teachers have learnt through bitter experience. When it comes to a matter of bringing pressure to bear on the central authority we can do nothing. Men teachers not only have their votes and their political influence as citizens, but they have old boys in the Houses of Parliament, in the Civil Service, and in office to whom they can appeal, who can put their points for them, who can influence the people that matter. We are helpless. With the Local Authority we have at least some opportunity, through women representatives, through the Councillors in town or county, to whom the votes and local influence of educated women are of some value, through our old girls, who have family connexions with those in authority, and can put our points for us. It is not the writer's desire to enter here on matters of political controversy, but merely to emphasize the results of things being as they are, results known very well to those especially who have had the honour to be Presidents of the Head Mistresses' Association.

Both the women's associations are well aware of the pressing need for that augmentation of salaries which can only come from an increased Government grant, and they have supported the recent deputation to the Prime Minister, and shared in it. We are feeling the effect on our profession of the new openings for educated women, especially in medicine and social work. Head mistresses cannot find in sufficient numbers the able and original women who came into the schools ten to fifteen years ago: women's colleges are advising their best students not to take to school teaching. We ourselves advise our ablest girls to qualify in medicine if they can, when the woman doctor begins at a salary which is a maximum for the most fortunate assistant mistresses, or to consider social work with its few but big prizes of £1,000 a year or more. We see, too, and gladly, how often marriage carries off from our schools the more distinguished and able members of our staffs. We *must* get a better supply of mistresses if we are to go on doing as we have done in the past. For this, one way at least is to increase salaries. Teaching is so natural and happy a career for women that, if only a reasonable provision for personal efficiency and support in old age can be secured, the best women will always follow it. But to lose their freedom, to be cramped by State regulation and bureaucratic control would be a far greater hindrance to their entry than is that relative poverty of our profession which it is the object of us all, men and women alike, to remove.

THE BASIS OF GRANTS.

MEMORANDUM CONCERNING THE PROPOSAL THAT STATE GRANTS SHOULD BE BASED UPON THE SALARIES OF TEACHERS, ISSUED BY THE INCORPORATED ASSOCIATION OF ASSISTANT MISTRESSES IN PUBLIC SECONDARY SCHOOLS.

IN a memorandum recently presented to the Federal Council, entitled "A National System of Education on a New Basis of State Grants," the proposal was put forward that for the future State Grants should be based upon the salaries of the teachers instead of, as at present, upon the number of pupils in the Schools. This memorandum was submitted to the Federal Council of Secondary Schools Associations for consideration, and was by it referred to the various constituent bodies.

On October 25 a special meeting of the A.A.M. was held to consider the proposed change of basis of the grants, a copy of the Memorandum having previously been sent to every member. The meeting was of a representative character, and letters were received from Branches which had summoned their members for the purpose of discussing the proposal previous to the General Meeting held in London. The opinions expressed may therefore be taken as those of assistant mistresses in every type of public secondary school throughout the country.

At this meeting a resolution expressing agreement with the resolution submitted by the Incorporated Association of Head Masters, "That as a first step towards the creation of a National system, the State grants for education should in future be based upon the remuneration of teachers instead of upon the attendance of pupils, and that the Federal Council take steps to press for this reform by every means in their power," was defeated, and the following resolution was passed by a majority of more than four to one: "That, while desiring an increased grant from the State for the purpose of raising salaries, this Association deprecates the proposal that the grants should be proportioned to the salaries of teachers, or should be calculated on any other basis which would involve an inequality of treatment as between boys and girls."

All the letters received from the Local Branches of the Association expressed the same point of view.

The A.A.M. finds itself in hearty agreement with the arguments set forth in the Memorandum alluded to in so far as they indicate the necessity of largely increased grants from the State, in order "(*a*) to relieve Local Authorities of an increasing incubus of financial responsibility; (*b*) to raise the status and qualifications of the teachers; and (*c*) to equalize throughout England the conditions for securing the efficiency of schools and other educational institutions." *

The increased grant from the State is specially needed in order to augment salaries, if men and women of high qualifications and strong personality are to be drawn into the profession in sufficient numbers. The average salary of an assistant mistress in a grant-aided secondary school is only £121 per annum, a sum quite insufficient to allow of her entering on equal terms into the more cultured society of the locality in which she works, to enable her to gain mental stimulus and breadth of outlook by travel in the holidays, or to make adequate provision for illness or old age. By this cramping of her life, her work in the school is weakened, while many of the most able women are debarred altogether from adopting the teaching profession when they leave the University.

THE ADVERSE EFFECT OF THE SUGGESTED CHANGE ON THE FINANCE OF GIRLS' SCHOOLS.

The proposal to base the State grants upon the salaries of teachers would not, however, relieve the situation so far as women teachers

* A National System of Education, § 3.

are concerned. If the new grants were calculated on the basis of salaries similar to those now in vogue, the salaries of women teachers, being, on an average, only 75 per cent. of those of men, the grant given to a girls' school would be only 75 per cent. of that given to a boys' school of the same size, instead of the grants to the two schools being equal, as heretofore.

Assuming that in grant-earning schools the number of girls and boys is approximately equal, girls' and boys' schools alike may be assumed to be earning about 6½ millions, half the present Treasury grant of 13 millions.* On the proposed new basis, if the girls' schools still earn this sum, the boys' should earn nearly £8,700,000; that is, in order that the girls' schools may just retain their present financial position, an extra grant of nearly 2⅓ millions would be needed.

Again, the present total cost of secondary education being 30 millions, and salaries being reckoned as 70 to 75 per cent. of the total cost (*i.e.*, say 22 millions), it follows that, if the State took over 75 per cent. of the present expenditure on salaries as suggested, it would have to raise its grant to 16⅓ millions, an increase of 3⅓ millions over that now given, that is, just over 1 million more than the increase already shown to be essential if girls' schools are to be kept at the present financial level. Of this million, calculated on the basis of salaries, a little over £400,000 would be given to girls' schools, a little under £600,000 would be given to boys' schools. Of the whole 3⅓ millions additional grant, therefore, nearly 3 millions would be devoted to improving the conditions in boys' schools, less than half a million would be devoted to improving the conditions in girls' schools. The women teachers see scant hope in such a scheme for a substantial rise of salaries.

Its Effect on Poor Areas.

What has been said of the inequality of treatment as between girls' schools and boys' would in a similar way be true in the case of rich and poor areas. The proposed change in the method of calculating grants would penalize the poorer areas and poorer schools at the expense of the richer by giving smaller grants to those that can only afford smaller salaries; instead of, as is most desirable, equalizing conditions throughout the country.

The Difficulty not Removed by Model Salary Scales.

It is argued that these objections to the new scheme would be met by the setting up of new and improved salary scales by the State. Even were this done, the burden of the poor area would still be as heavy as that of the rich, a definite fraction of the salary fund and the whole cost of the schools, other than that of salaries, having still to be found by the locality. Women on their side see little reason to hope that the State would fix their salaries very much nearer to those of men than is the case at present. The grievance on the part of the girls' schools, therefore, though it might be to some extent mitigated, would not be altogether removed.

The Equal Claim on the State of Girls and Boys.

The Assistant Mistresses, as a women's association, are most desirous that in any new scheme which may be adopted by the Government in the forthcoming Education Bill girls' and boys' schools in the same area shall receive identical treatment. The adoption of the present basis has constituted a tacit assumption on the part of the State that to the State the education of its women is of equal value with the education of its men. As such, it has been an invaluable aid to girls' education, which, in any case, suffers from poverty of endowment and relative lowness of fees. To the average parent the education of a boy is of more importance, and worth a greater monetary sacrifice, than that of a girl, and this attitude is to a large extent justified by the comparative uncertainty as to the girl's future and the smaller return for the outlay which will almost certainly be obtained in her case. These considerations, however, do not affect the State. For the healthy life of the nation an educated womanhood is essential, and, therefore, worth as great an outlay as an educated manhood.

Proposal to "Adjust the Fraction" Undesirable.

The suggestion that the unfairness of the new proposal to the girls' school might be met by an adjustment of the fraction is not one which commends itself to the women teachers. It is significant that at the meeting of the A.A.M. on October 25 an amendment in favour of supporting the principle of basing grants on salaries, with the proviso that a larger fraction should be adopted for women than for men, found favour with neither side, and obtained only two votes. A proposal that the State should pay a larger proportion of the women's salaries than of the men's is not one which seems likely to commend itself to the common sense of the nation, while it would have a most unfortunate effect in fixing the difference between the salaries of men and women doing the same work, and in hindering that gradual adjustment which is, in fact, taking place.

* This is the total grant given to elementary, technical, and secondary education.

Civil Service the Inevitable Outcome.

It is clear that for the State to undertake the payment of a considerable part of the salaries would necessitate a readjustment of the relations between the State and the teachers: that, in short, the adoption of the new basis would constitute a first step towards making the teaching profession a branch of the Civil Service. Whilst undoubtedly for teachers to become Civil Servants might help in welding the profession together and equalizing the conditions of service throughout the country, there is, nevertheless, a large body of the profession who feel that it would be detrimental to education in so far as it would tend to hamper that freedom of adjustment to local conditions and special needs, that power of development of an individuality distinguishing one school from another, which is one of the most precious possessions of our English system. To men and women with enthusiasm and originality the loss of this freedom would act as even a greater deterrent from entering the profession than the low salaries do at present.

More particularly are women teachers opposed at the present time to any action which would tend to put them directly under the State, where they have no representation, instead of under the Local Authorities upon which women sit.

The present very real problem with regard to salaries would, it is believed, be equally met by a larger grant from the State, so distributed that both rich and poor areas would be enabled to pay adequate salaries without undue financial stress. If this were the case, it would become possible for the Board of Education to put effective pressure on the Local Authorities and governing bodies to secure the proper payment of their teachers, while leaving to them the same measure of freedom as at present in the organization of the schools.

Isabella M. Drummond, President.

RESOLUTIONS PASSED AT MEETINGS OF EDUCATIONAL BODIES IN JAN. 1914.

The Incorporated Association of Head Masters, January 6 and 7.

Teachers' Registration Council.

That this Association welcomes the issue, by the Teachers' Registration Council, of the Conditions of Registration, and urges all its members to apply at once for Registration.

Examinations.

That this Association—

(1) Cordially welcomes the action of the Board of Education in entering into negotiations with the various University examining bodies, with a view to making school examinations more uniform.

(2) Approves of the establishment of two grades of school examinations, one designed to test the results of a broad general education, and to be taken by pupils of about sixteen; and the other of a more specialized character suitable for pupils of about eighteen.

(3) Is of opinion that no material relief will be afforded to schools unless Universities and professional bodies accept these certificates in lieu of their own Entrance Examinations; and trusts that the Board of Education will take steps to secure such acceptance as soon as possible.

(4) Is of opinion that a co-ordinating authority to deal with questions of standard should be established by the Board of Education in conjunction with the Teachers' Registration Council.

(5) Reaffirms its convictions that acting teachers should be represented on examining bodies; and that schools should be allowed, subject to the necessary safeguards, to present their own syllabuses of examination.

Forthcoming Education Bill.

That, in view of the Government's expressed intention to deal comprehensively with National Education by means of an Act of Parliament, this Association affirms—

(1) That the creation of a National System of education is urgently needed.

(2) That it should be the object of such a system to provide that in all parts of the country children of all ages may have the opportunity of enjoying instruction appropriate in kind and satisfactory in quality.

(3) That the next step towards the attainment of this object must be the organization of secondary education.

(4) That the organization of secondary education cannot be successfully accomplished without such a radical reform in the financial conditions as will make it possible to satisfy the increasing demand for teachers of high qualifications.

(5) That the basis of financial reform must be the assumption by the State of responsibility for securing adequate salary scales and pensions for teachers in all areas.

(6) That, when the State has assumed this responsibility, the

Board of Education may reasonably require that all teachers shall be registered and that all schools shall be inspected.

Scholarships to Universities.

That this Association, believing that the provision of scholarships and exhibitions for the purpose of enabling students of slender means to enter, and complete their course in, Universities and other places of higher education is in many parts of the country very inadequate, welcomes the announcement that the Consultative Committee have been requested by the Board of Education "to consider what measures are necessary and practicable for developing a system of such scholarships and exhibitions in organic relation to a system of national education."

And is strongly of opinion that there is urgent need for providing assistance to able, yet poor, pupils at early periods in their school-life by means of Maintenance Scholarships, held with free places from the first, and Intermediate Scholarships at the ages of fourteen and sixteen, as without such aid promising pupils may never have the chance of a higher training.

The Report of the Royal Commission on Teaching in London University.

Whereas the Report of the Royal Commission on University Education in London raises many questions of vital importance to secondary schools, this Association hereby adopts the following Resolutions:—

(1) That the minimum age of Matriculation, *i.e.* of entry to a University or College, should be seventeen.

(2) That a student who has passed the lower of the two School Examinations (contemplated in the Report of the Consultative Committee), and has entered a University for a Degree Course, should be required to spend four years at the University before obtaining the Degree; and that a student who has passed the higher of the two School Examinations aforesaid may complete his Degree Course in three years.

(3) That the time has not yet come for the abolition of External examinations for Degrees.

(4) That increased facilities for University training, such as are given in Scotland, should be given to the abler students intending to teach in elementary schools.

INCORPORATED ASSOCIATION OF ASSISTANT MASTERS, JANUARY 3.

Registration.

That this Association approves of the conditions for Registration recently issued by the Registration Council, as embodying principles which the Association has long and consistently advocated; and recommends all members of the Association to place their names upon the Register immediately.

Right of a Hearing.

That this Association expresses its regret that the Board of Education has declined to accede to the request of the Association that a clause be inserted in all schemes, and articles of Government, to give assistant masters served with notice of dismissal the right to be heard by governors before notice of dismissal takes effect.

Tendering for Posts.

That this Association strongly condemns the action of certain Local Education Authorities in putting out assistant masterships to lowest tender.

Free Periods.

That, in the opinion of this Association, all assistant masters should be given a proper number of periods in each week for correction of written work.

Leaving Examinations.

That all Leaving Examinations, qualifying for Universities or professional courses, should be co-ordinated, so that any one examination may qualify for all University or professional courses.

THE INCORPORATED ASSOCIATION OF ASSISTANT MISTRESSES, JANUARY 9.

Annual Salary.

That this Association affirms the principle that the payment for a full scholastic year's work should be the full agreed annual stipend, and, in cases where the year is divided into three terms, the payment for a term's work should be one-third of the agreed annual stipend, whether the Assistant Mistress be returning after the vacation or not.

THE PRIVATE SCHOOLS ASSOCIATION (INCORPORATED). SURVEY OF PRIVATE SCHOOLS, JANUARY 8.

That this meeting tenders its hearty thanks to the Dean and Council of the College of Preceptors for their generous assistance in the important matter of the Survey of the Private Schools of England.

Registration of Teachers

That this meeting welcomes the new Teachers' Register, and pledges itself to do all in its power to secure the success of the Register and the inspection of the teaching profession, provided that it receives specific assurances that the Registration Council will deal generously with private-school teachers and will uphold that freedom in education for which the Association stands.

SIMPLIFIED SPELING SOSIETI, JANUARY 5.

That this meeting regards it as a matter of great importance that English standard speech should be clearly defined, and requests the Board of Education to summon a conference for this purpose.

THE CATHOLIC TEACHERS FEDERATION, LEEDS, JANUARY 2.

A resolution was passed expressing condemnation of the unjust regulations, 23 and 24, of the Secondary School Code.

THE JOINT MEETING OF THE N.U.T., ASSOCIATION OF TEACHERS IN TECHNICAL INSTITUTIONS, THE UNIVERSITY OF LONDON GRADUATES' ASSOCIATION, AND THE W.E.A., JANUARY 9.

External Students.

That this meeting, while welcoming any extension of opportunities for internal students, strongly deprecates any proposal that limitations should be placed upon the existing facilities for obtaining external degrees at the University of London.

That this meeting emphatically protests against the suggested exclusion of external students from the degree examinations of the University of London in the proposed Faculty of Technology, which will include Engineering.

That this meeting declares that in any scheme for the reconstruction of the University of London the present powers of Convocation should be maintained.

THE TRAINING COLLEGE ASSOCIATION.

Resolutions were adopted recommending that every type of training college, secondary as well as primary, should be equipped with a demonstration school, that the whole or part of the staff of such schools should be treated as part of the staff of the training college, and as such receive salaries and enjoy status adequate to the discharge of the duties, and that the additional cost so incurred should be met by an additional grant. The Association also adopted a resolution recommending members to join the Teachers' Register.

ANNUAL MEETING OF THE MATHEMATICAL ASSOCIATION.

ON January 7 a large number of the members of the above Association took part in the Annual Meeting. It was again held at the London Day Training College, Southampton Row. At the commencement of the morning Session the chair was taken by Mr. A. W. SIDDONS, of Harrow, in the unavoidable absence of the President, Sir George Greenhill. It was not indeed until the afternoon hour fixed for his Presidential Address that the latter appeared on the platform, though he was in the room earlier. During the morning Session the first item on the program was an interesting address by Mr. R. W. K. EDWARDS on "The Setting out of certain Easy Cubics," with special reference to the way in which these curves may be presented to the junior student as the simple and partially speculative development of ideas already made familiar by the practical investigation of second degree curves. The speaker pointed out the increase of power afforded by the use of the properties of oblique as well as rectangular symmetry. In practice it has hitherto been usual to introduce only the latter into elementary teaching. Consider, for example, the conic hyperbola which possesses two axes only of rectangular symmetry, but any number of pairs of axes of oblique symmetry. Conceptions of points at infinity, of tangency, of asymptotes, and, in the case of third degree curves, of the way in which a point disappearing at infinity in one direction reappears at infinity in the opposite direction and on the same or on different sides of the asymptote, according as that line does or does not osculate the curve—these are a few of the notions which Mr. Edwards claims as being easily derivable by means of practical work. The lecturer assisted his text by clever, rapidly drawn blackboard sketches. It was unfortunate that, owing to the brief time available for a paper which possibly did not allow of condensation, he found himself obliged to read too rapidly to give his audience the opportunity of following every detail as closely as many of its members would probably have liked to do. Further, it became impossible for any discussion to take place after the delivery of the address.

Prof. J. E. A. STEGGALL, of University College, Dundee, next contributed an excellent paper on "Practical Mathematics at School." He premised that his work lies rather far from the centre of the discussion about reform in mathematical teaching and that remoteness may induce the survival of old ideas; but we think no apology was

needed for the wise and reasoned tone of the views he expressed. Practical work? Yes, but practical work that tends, at any rate, to teach something truly mathematical. The speaker asked, for instance: "Does the comparison of areas by weighing further mathematical education in *any* way?" Experimental discovery of facts? Yes, but it is valuable principally, if not solely, when the results can be and are verified by independent demonstration of a different type. For example, let geometry and algebra illuminate each other by the independent plotting of the two sides of an algebraic identity. The production of the same curve in each case demonstrates the equivalence of the expressions. The lecturer believes that merely to count the divisions of squared paper, in order to find the area of a rectangle whose sides are represented by integers, is of small value. He maintains that no method is of great utility, unless it explains its application to rectangles whose linear dimensions are fractional. A very valuable criticism was offered in connexion with the arbitrary selection of different scales for the graphing of the co-ordinates of a curve. Students often do not even get the curve defined by the equation they are plotting—as, for example, when to the eye a circle becomes an ellipse, because the x unit and y unit differ. Prof. Steggall also questioned the intrinsic value of acquiring facility in the use of books of tables, and expressed a preference for the extraction from the tables of the data required by a non-specializing student when he has a particular problem to solve. Some knowledge of the nature and use of certain linkages, such as the Peaucellier cell and the pantograph, the lecturer strongly recommended.

One further item completed the proceedings assigned to the morning Session. This was a discussion of the Public Schools Committee's Report, which those interested will find published in the *Mathematical Gazette* for July, 1913. The discussion was opened by Mr. A. Lodge, who drew attention to a point that needed correction. It had been erroneously stated that the Report had been "approved," whereas at present it was merely "approved for publication." Subsequent speakers specially interested in the matter showed that they were not in accord with the whole trend of the Report, although they were not prepared with detailed criticism of definite points. Replying to dissentients, Mr. Siddons stated that the Committee desired to procure greater freedom for teachers and that the Report was issued as a preliminary one to clear the way for further reports on various subjects. He said that what the Committee wants is detailed criticism, and he claimed that the Report is not extreme in character, but representative. To the complaint made by Mr. Jackson of Woolwich that pupils enter Woolwich without the necessary equipment for further work, and that elementary processes equivalent to the reading and writing of general education have not been mastered by them, Mr. Siddons replied that one of the crucial points is to decide where this specialist equipment (the necessity for which all admit) is to be obtained with the greatest advantage. In the school, what appears to be of primary importance is to teach pupils to think. The speaker, who contended that the suggested syllabus of examination is too low, received the assurance that the standard of the curriculum is not too low, but that the testing does not reach the limit of difficulty admissible.

Mr. Lodge also replied briefly and in terms of general agreement with Mr. Siddons. More was not possible, he said, since none had commented on the Report itself, and therefore there was nothing for him to answer on the Report itself.

The afternoon Session opened with the Business Meeting of the Association. The Chairman referred, with regret, to the death of Sir Robert Ball, F.R.S., who was President of the Mathematical Association in 1899 and 1900, and also to the day's announcement of the passing away of Dr. Wormell, one of the founders of the Association, when it started in 1871, as the "Association for the Improvement of Geometrical Teaching." Dr. Wormell remained a member from that time to the present. Various reports were accepted after having been either read or distributed to those present, and, in connexion with that of the Treasurer, it was stated that, taking the balance-sheet and certain special facts together, the financial condition of the Association may be declared fairly satisfactory. Those that held office during the past year were re-elected, except that Mr. C. V. Durell and Mr. P. J. Harding retired from the Council, and, as a result of voting, Mr. Boon and Mr. Roberts succeed them. The scheme for a new constitution of the Teaching Committee claimed attention, proposed changes being the result of experience gained in the working of that body.

Sir George Greenhill next delivered his Presidential Address on "The Use of Mathematics," dwelling on the great value of mathematical study, primarily as a mental discipline, a training in the acquirement of exact knowledge, and, further, in its applications, through which it ministers to the welfare of men and nations. He drew attention to the change in the place assigned to mathematics in the field of science, the tendency now being to class it with moral rather than with natural science.

Mr. G. St. L. Carson followed with a forceful paper on "Graphs and their Uses." The lecturer maintained that the study of graphs is very generally approached from the wrong end, that where students are first set to plot the points given by the variables in an algebraic expression, the ideas gained are unduly limited, for, of necessity, only a more or less small number of points is dealt with. The fundamental principle which graphs should teach is that of functionality. A graph, properly understood, presents clearly to the eye the entire history of the mutual relation between certain interdependent quantities or magnitudes. A student should know how to interpret this history in general terms from a consideration of the shape of the curve, and, conversely, it may be assumed that, given the general mutual relation between certain quantities or magnitudes, he should be competent to suggest a suitable type of graph to represent it. Numerical results properly take a later place. The fitting of an algebraic equation to denote the relation between the values of an arbitrary variable and some function of it is an after process—at any rate, from the educational standpoint, and should take up its proper position as such. Mr. Carson pointed out the defects involved in attempting to draw continuous graphs from the details yielded by statistics. In fact, in reply to a question raised during the discussion following the paper, he expressed himself very favourably with regard to the method of leaving such graphs in the form of a series of plotted points instead of adopting any mode whatever of joining them. Another topic in the paper was the discussion of the relation of the calculus and its notation to graphical work. Reference was also made to the comparative worth of graphical and algebraical applications of the calculus. The paper gave rise to a short general discussion of the subject dealt with in it.

The final paper of the program entitled "Principia Atmospherica" was delivered by Dr. W. N. Shaw, F.R.S., Director of the Meteorological Office. The details of the address were necessarily of a rather special character, and Dr. Shaw appeared to enjoy the condition of immunity from criticism created for him by the knowledge that none present were likely to undertake the task of attempting to disprove any portion of what he submitted to his audience. In the course of his address, he set forth a series of postulates, axioms, and laws which may be applied to calculate the relations existing in the free atmosphere between pressure, temperature, and wind velocity. The lecturer drew attention to interesting contrasts between conditions existing in the stratosphere from a height of eleven kilometres and upwards, and what obtains in regions nearer us than a height of nine kilometres.

Social functions ended the day's proceedings, including an informal Dinner at the Trocadero.

THE MODERN LANGUAGE ASSOCIATION.

The meeting of the Modern Language Association was marked once again by the spirit of co-operation. Sir Henry Miers, the President, called attention to the value of modern languages to the man of science, and there was a lively debate on the teaching of modern languages and modern history. The meeting was further marked by the papers on French subjects, in French, by Englishmen. This pleasing innovation will, no doubt, be extended to German. It has some bearing on a controversy now raging in the educational world.

The Presidential Address.

Sir Henry Miers called attention to the duties and responsibilities of the Association on coming of age. Modern subjects were only beginning to feel their feet, but they were already shaking the foundations of the old methods. The old classical methods were good for the scholars, but had no success with the ordinary pupil. He knew a boy who had failed at a public school, but later, under different guidance, remarked on the classical authors: "I'd no idea these Johnnies could write anything interesting." He illustrated the spread of culture by a conversation that he had overheard. First Crossing Sweeper: "What are you reading now?" Second ditto: "Mrs. Oliphant's 'Lectures on Florence.'" In these days of newspapers and magazines, with their habit of superficial reading, the slow and careful reading of foreign languages is more valuable than ever. It leads to patient and careful thinking. The students in whom he was most interested were the men who did not fit into our system, the students of science and the older men generally, who wished to teach themselves. They needed other books and other methods than those in use for young pupils. At the Universities there was a disinclination to arrange for beginners in any subject. At Oxford he had known an able young Frenchman, working at philosophy and theology, who wished to acquire some knowledge of science by working in the laboratory. The regulations for admission required a knowledge of physics, chemistry, and mathematics. Sir Henry evaded the regulations by employing him on research work of his own. The student mastered the elementary knowledge for himself, and later won some distinction as an original scientific investigator. Now, the man of science needed not only French and German, but

Italian, Spanish, and Russian, so that he might follow the experimental work going on abroad and understand the general ideas of foreign workers. In learning these languages he needed no trivial exercises or specialist grammar; he needed advanced ideas and simple means, so that he might translate readily. The foreign book, then, should be on a subject in which he was interested; there should be a literal translation opposite; there should be notes on the main linguistic difficulties. The student might not learn translation as an art, but he would learn to see the difference between a good and a bad translation. Many translations of scientific books were mere jargon. He called attention to the growing numbers in tutorial classes for workers: they already amount to five thousand. At present these men demanded, in the first place, political economy and sociology, and, in the second, literature, history, and science. But the demand for modern languages would certainly come, and members of the Association should be prepared to meet it.

History.

Mr. H. L. Hutton dealt at some length with the fundamental reasons for teaching European history and the importance of the study of modern as compared with the study of Greek and Roman history. England is always engaged in competition with neighbouring civilizations, and if she is to secure success, she must understand these other types. History as recorded in the foreign language and literature is the key to this understanding. The study of classical history fosters insularity. We need a culture related to the civilizations of the present day, such as we may live ourselves in Paris or Berlin. The scheme he proposed for German was based on the concentric system. Boys beginning German about the age of fourteen should learn six fundamental dates connected with great personalities and great movements—800, 1521, 1618, 1740, 1813, 1871. The study of literature should begin with the learning by heart of lyrical poetry. At each stage details can be added to the picture and gaps filled in. In the third year history will be studied in Schiller and Freytag, with plays and poems.

Mr. Kittson expressed the view that European history must be studied in English, and several speakers held that the teaching of history was the work of the history specialist, and that this new burden must not be put upon the modern language teacher.

Prof. Milner Barry stated that history was being substituted for historical grammar in Welsh examinations, and his motion that the subject deserved the consideration of a special committee was adopted.

Free Composition.

Mr. F. Storr deprecated the exclusive use of Free Composition; it might produce a certain glibness and fluency in small talk, but, since it left the writer entirely free to avoid difficulties, it did not make for accuracy or precision of expression. Free Composition was an unsuitable subject for external examinations as they are at present conducted in England—*i.e.* without a compulsory *viva voce* test—as the striking similarity of subject set in the various public examinations encouraged cramming. A further objection was that the difficulty of marking and the varying standards of different examiners—as shown by recent experiments in *Modern Language Teaching*—involved hardships for teacher and pupil. Finally, the speaker pronounced a strong indictment of Free Composition. It could not, and should not, take the place of translation proper; it could not teach the language of poetry nor the appreciation of such artistic productions.

Mr. Richards dealt with the limits and limitations of Free Composition. Certain conditions were required; a fairly extensive vocabulary and a sound knowledge of grammar. The latter could best be obtained by means of a certain number of translation exercises. Having thus acquired a sound grammar, the pupil might safely begin this subject. To the objection that translation militated against thinking in a foreign language and the acquisition of *Sprachgefühl*, his answer was that pupils at school never did think in a foreign language.

Miss Batchelor said that at present the teaching of free composition lacked system, but that it was a mistake to attribute this defect to the subject itself. It was not necessary to deal exhaustively with each separate composition; a few might be taken and treated in detail, whilst general mistakes common to all or to a majority of the compositions could be pointed out to the whole class.

H. L. H.

The twelfth volume of the "Everyman Encyclopædia" has just been published, making the work complete. The twelve volumes contain an aggregate of over six million words, comprising more than seven thousand pages of text. The work is offered in sets at 12s. net, or, if desired, any volume can be purchased separately, bound in cloth, at 1s. A special box to hold the full set is supplied by the publishers, or through any bookseller.

CURRENT EVENTS.

On Wednesday, February 18, at 8.p.m., Mrs. Philip Snowden will give a lecture to the Members of the College and their friends on "Peeps at Parliament through a Woman's Eyes."

Messrs. J. & J. Paton send us a new edition of "How to become a Naval Officer." The book is well produced and well illustrated: it contains the latest regulations. In view of the discussions that have recently taken place on the training of naval officers, its reissue is opportune.

The number of posts filled during 1913 by the Joint Agency for Assistant Masters marked an advance of 20 per cent. on the number of the preceding year.

Sir John McClure has been elected President of the Head Masters' Association; Mr. Rushbrooke remains Treasurer, and Mr. Cholmeley and Mr. Jenkyn Thomas How, Secretaries.

Two houses in Gower Street, numbers 19 and 21, have been taken as the first home of the University of London Club.

Dr. Thomas Percy Nunn, Vice-Principal of the London Day Training College, has received the title of Professor of Education in the University of London.

The *Bookseller* gives the number of educational books published during 1913, as 453; in 1912 the number was 522. On books of all sorts the labour difficulty seems to have had little effect, as 12,046 have been published as against 12,886 for 1912.

A boy in a Birmingham school has been awarded £20 damages against a teacher for hitting him.

The membership of Secondary, Technical, and University Teachers' Insurance Society stands at 10,349: 8,543 women and 1,806 men.

Sir John McClure, speaking of the enforced celibacy of teachers owing to inadequate salaries, said that two years ago, at Eton, 49 out of 63 assistant masters were unmarried.

Mr. N. J. Crawford, B.A., formerly Principal Clerk for Higher Education under the Glamorgan County Council, has been appointed Secretary to the Appointments Board of the University of London in succession to Dr. A. D. Denning.

The publishers state that over a million copies of Prof. Lyde's geography textbooks have been sold. A new edition is announced, in which there will be problems and exercises illustrated by diagrammatic maps.

Mr. George Cadbury has given five acres of freehold ground to the City Council of Birmingham, to be used as a playing field by the King's Norton Secondary School.

The Education Committee of Cardiff have decided to set up an installation for the teaching of Wireless Telegraphy in the Municipal Secondary School.

Mr. Balfour and Lord Esher have presented to the University of Cambridge, for the use of the Arthur Balfour Professorship of Genetics, a property consisting of a residence for the professor, a laboratory, and accommodation for a resident attendant. The house is in Storey's Way, and is to be called Whittingehame Lodge.

The Quarterly Meeting of the Moral Education League will be held in the Hall of the Royal Society of Arts, 18 John Street, Adelphi, at 8 p.m., on February 6. Mr. William Archer will speak on "Knowledge and Character."

The proprietorship of the Cambridge University Calendar has been transferred from Messrs Deighton Bell & Co. (who have been the proprietors for more than a hundred years) to the Syndics of the Cambridge University Press.

The publishers send us a notice stating that in future "Heaton's Scientific Geographies" will be subject to the usual discount, instead of the prices being net.

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THE PRESENT EDUCATIONAL DISCONTENT.*

By A. C. BENSON.

AT the time when the Tichborne case was attracting the attention of the public, a mob orator was heard in Hyde Park to say with much emphasis that he did not care two straws whether the claimant was Sir Roger Tichborne or not; all he asked was why a poor man should be kept out of his rights.

When discontent is in the air, we must be on our guard against this kind of attitude; before we criticize, we ought to feel pretty sure that things are amiss, and that the defect is a remediable fault, and not a mere defect of quality, inherent in the imperfection of things. We may spend a long, laborious, and not very happy life in tracing the cracks which run through our social structure; but criticism by itself is a merely disconcerting business, and a destructive critic is often little more than a very tedious companion.

The educational discontent of the present time is not of this kind; it is an intelligent, sympathetic, even a good-natured discontent. Of course all expert criticism is apt to arouse a mechanical reverberation among the large class of people who like to feel that they are not responsible for their own failure; but it may be said that there are a good many educational critics now in the field who really understand their business, quietly investigate and face the facts, and make fruitful suggestions.

I am going to try in a short paper to present what I believe to be a substantial case. Let me briefly indicate my position in the matter. In the course of twenty years' experience as a public-school master, I became very much aware of an educational gulf, into which I saw a good deal of promising and intelligent material disappearing. I saw

* Read at Bradford on January, 2, 1914, and printed here by arrangement with the author.

a number of boys start in the race with a lively inquisitiveness, who either, so to speak, never reached the tape at all, stopping listlessly by the way, or reached it in a very helpless condition. I saw, or thought I saw, a manufacture of intellectual cynicism and intellectual indifference on a large scale; and it appeared to me that the result of the public-school curriculum on far too many boys was that they ended by disbelieving in the pleasure and interest of intellectual things. Of course, it was quite possible that this was inevitable, and that whatever the curriculum might be, the same result might ensue; or again, it might have been a failure of method rather than of subject. But I tried certain experiments, which I need not here detail, which convinced me that it was to a large extent the fault of the subjects taught, and that they proved to a large number of boys uninspiring and uncongenial.

Then I went on to the University, and had to teach a number of young men of average intelligence how to write essays: and what I saw made me perfectly certain that the intellectual interests had not been so much eliminated as suspended, and that in all probability the faculties had been there all the time, only dormant.

Since then I have had a good deal of experience in the working of educational systems in connexion with the Board of Education, a County Education Committee, the Oxford and Cambridge Joint Board, and the Teachers' Training College at Cambridge. I have really had an opportunity of seeing how the whole thing works, and the conclusions which I have formed have not been mere theories, but deductions from very real experience.

I am going to isolate one single problem from the other problems which abound; for in trying to track to its source the particular defect which interested me, I became aware, not to go too much into detail, that the source of the mischief lay in the Universities. I came to the conclusion that, both directly and indirectly, the University of Cambridge, at all events, exerts a cramping and stunting control upon the school curriculum, partly by our method of encouraging and rewarding intellectual promise, and partly by the compulsion which we exercise with regard to particular subjects. The latter is the more serious misdemeanour, because I feel fairly sure that my University does its duty very well by the Honour men; but the pass examinations of the University have few rational defenders. They are admitted to be a helpless compromise, and they sacrifice standards and stimulus alike to the conflicting claims of teachers and Tories, who prefer that a subject should be ill-taught rather than frankly abandoned.

By rigidly limiting alternatives, by retaining what claims to be a general education but is in reality a meagre kind of specialism, and by taking advantage of the necessities of class-instruction and the co-ordination of subjects, the older Universities lay a paralysing hand on the school curriculum. The chain of causes is simple enough. A certain number of boys are intended for the University and have to be prepared accordingly; a certain number of parents cannot make up their mind whether their boys are intended for the University or not, and wish them to be provisionally prepared for it, and the result is that the curriculum of a school has practically to be adapted to the requirements of the University. The larger public schools are the worst sufferers, because a larger proportion of their boys go to the University; the lesser schools have partly extricated themselves from the control; but again, as an examining and inspecting body, the Universities have a wide influence in regulating the curriculum of secondary schools, and it is very difficult for any one school to isolate itself from the general tendencies of education and take a wholly independent line.

Now, as we all know, the chief difficulty of education nowadays, which meets us at every turn, is the congestion of the curriculum. It is a perfectly inevitable difficulty; it is but the clashing of the expansion of the modern world with the old educational tradition. It is, on the one hand, the ancient humanities; on the other it is the new romantic movement in literature, the development of history as a science, the immense increase in sociological and geographical knowledge, and, most of all, the incredible growth of scientific knowledge in every department. The first point of all is that education ought no longer to be divided as ancient and modern, but as literary and scientific; and our first aim must be to create a new balance; a literary education with a tincture of science on the one hand, and a scientific education with an admixture of literature. This should enable the man trained in literature to have a logical hold on facts, and the scientifically trained man to cultivate a power of expression; to say nothing of the value of sympathetic imagination which is often destroyed by specialism. The end of it is that men should acquire an interest in ideas; that literature should not stand for culture apart from knowledge; and that science should not stand for knowledge apart from culture.

The mischief of the present situation is simply this: that, by demanding a modicum of ancient languages as a *sine qua non,* the literary education is to a great extent limited in range and extent. A boy trained in Greek and Latin on the usual methods has to face the fact that it must become the core of his education, and that the time available for all other subjects is not very great; while to that I must add that my experience has shown me, quite beyond the possibility of doubt, that there are many boys quite capable of being affected by intellectual interests, and even literary influences, who are not responsive to the classics at all. I do not for a moment underrate the supreme influence of Greek over a mind with real linguistic and literary capacity; but it is a high and guarded fortress, and entrance is not easy. I do not myself regard the literary influence of Latin very enthusiastically. Its books of genius and charm are rare; but its claims to provide a mental gymnastic, and the fact that it is the basis of so many European languages, though not to my mind very conclusive reasons, cannot at present be disregarded. The disuse of Latin as an element of literary education is not a practical question just yet; and therefore for the relief, both direct and indirect, of the curriculum, the main attack must be made upon Greek. However reluctant one may be to concentrate the attack upon Greek, and with whatever reverence one may regard it, one is conducted to Greek as the one real assailable point by practical considerations, as surely as an Athenian was conducted from the Piraeus to the city between the long walls, admitting of no divergence from the route.

My case, then, is simply this: that in the interests of the curriculum, the time has come for Greek to become an alternative on the literary side of education. And the significant fact is that the head masters of public schools have practically been converted to this position in the last decade; while if it is asserted that this means the disappearance of Greek from the lesser public schools, the plain reply is that it has already disappeared as a leading subject.

There is a scheme which is now much in the air to provide for an examination to test the progress of a boy's general education at the time when some measure of specialism becomes advisable, and a further examination at a later date to test special proficiency in more advanced studies. It is very necessary to provide some method of counterpoise to excessive specialization. But one thing is quite certain, that a boy's education, just at the time when he is capable of profiting by reasonable specialization, cannot any longer be allowed to be suspended and docked by having to acquire a miserable knowledge of the elements of Greek—a process fruitful in disgust and without any educational value whatever.

If this base necessity can be disposed of and a wider choice of subjects for the entrance examinations of the older Universities can be provided, the baneful grip upon the curriculum will be relaxed, and a real co-ordination of studies according to aptitude may take the place of a perfectly fruitless rigidity.

I cannot now venture to predict the direction which the expansion of the curriculum will take. The claims of English are paramount, and a real mastery of at least one modern language must be secured. It is probable that an acquain-

tance with English literature, together with a power of free expression in English, combined with a similar treatment of a foreign language can give the ordinary boy as much in the way of stimulus and contrast as he can well profit by. But so much mastery as is involved in the above suggestion must be a first article of the educational creed, and space must be ruthlessly cleared to provide it. The further claims of mathematics, science, history, and geography, Scripture knowledge, even music and handicraft must be adapted to this one central necessity. That is the literary side; and at the same time, on the scientific side it must be provided that a training in English literature and expression, and the secure mastery of at least one European language, should not be extruded.

Another great incidental advantage of such a scheme is that the Universities could then raise the standard of their pass examinations, instead of so far compromising with the exigencies of the time-table as to accept a standard in classics which is ludicrously and discreditably low. The Tory position in the Universities is frankly to abandon all standards of classical attainment among pass-men, if only the subjects can be retained as a fence which has no educational value, but which is difficult and inconvenient to surmount.

I would say in passing that I do not here attempt to criticize the newer Universities. From all that I know of them, it is obvious to me that they have a wider outlook and adapt themselves far more frankly and sympathetically to meet modern educational needs. But the wealth and prestige of the older Universities give them an unreasonable degree of independence. They are apt to excuse themselves for a lack of vital knowledge of educational problems by cherishing the loftier belief that they stand for culture against materialism; and high-minded tenacity backed by secure endowments is a thing which is strongly entrenched.

But I am convinced that a great liberalizing of the curriculum is both inevitable and imminent. In certain directions—and notably in that of science—my own University is well to the front. But our fault rather lies in nurturing a somewhat sterile and rigid ideal of culture, and in dismissing subjects which appeal directly to the interest and enthusiasm of students as soft options—that phrase is a very sharp sword in the hand of the ungodly and malicious!

The one subject which will, I believe, in a very short time claim a foremost place in the school curriculum is the study of English literature and the training of expression. It has been creeping slowly into the schools, the old theory being that English could be acquired incidentally, as pigeons pick up peas. The result has been that it has been attacked too often in a half-hearted and amateurish fashion, and put into the hands of untrained and unequipped teachers.

Side by side, then, with a wider choice of alternatives, I want to see the development of very serious schools of English literature. The enormous growth of the Historical Tripos at Cambridge, which is now, in point of view of numbers, ahead of all the other Triposes, shows clearly enough that there are a good many men in search of something which may bring them in direct touch with political ideas, and practise them in the art of lucid and emphatic expression. But even so, there are many men of literary instincts without historical aptitude; and I desire to see English studied, not only with a view to expression, but philologically, verbally, critically, and historically, not going too much into origins and sources, but dealing with the development of our literature from Chaucer onwards.

One of the chief causes of educational discontent arises from the queasy sensation of inanition in the victims of traditional methods. There are many minds nowadays on the look-out for interests and ideas, who do not quite know what they want, but cannot find satisfaction in the more technical prescribed studies. It is all this material which I wish to sweep into the net; and I wish to train the power of thought directly through the medium of the familiar tongue which corresponds to familiar thought, and no longer by the process of winding our way tentatively and lamely into the ideas which lie behind the languages of other nations old and new. I do not mean that linguistic gymnastic must be neglected, but it is advisable that all should be taught to deal with thought and expression directly and in the natural medium of our own incomparable tongue.

I want, then, to see on the one hand the restriction of subjects removed, and on the other a forward policy adopted in the direction of English teaching and native thought. The great difficulty is to balance conflicting claims; but the point is to *act* in the spirit of Dr. Johnson's famous apophthegm. He said that to lose time in deliberating what subject to begin teaching to a boy was like spending time, on getting up in the morning, in considering which foot should first be inserted into a man's nether garments; and if the homely force of his conclusion cannot decorously be quoted here, it may be summarized by the much tamer statement that the end of putting clothes on is, after all, not to remain unclad!

CO-OPERATION BETWEEN THE SCHOOL AND THE EMPLOYER.*

By Cloudesley Brereton, M.A., L. ès L., Officier de l'Instruction Publique, &c.

(*Continued from the January number, page* 34.)

Need of Differentiation between the Types of Workers.

Of course, in a paper like the present one, one must speak more or less in headlines, but probably enough instances have been given to show you that the problem concerns different grades of workers which fall at least into four if not more main categories: (1) the unskilled workers, (2) the rank and file of skilled workers, (3) the foreman type, (4) heads of departments; and there is in addition a fifth category—those who by birth or influence are likely to become heads of firms or managing directors.

The Different Schools they come from.

Roughly speaking, these different categories, apart from promotions by merit, come from equally different types of school. The unskilled and the rank and file of the skilled come from the elementary or the higher elementary school (now often called central) and the trade schools with a leaving age of sixteen; the heads of departments mainly from the secondary municipal or county school or the technical institute; while the fifth category, who are mainly the sons of their fathers, as the French say, from the public schools and the Universities. The evening school, whether elementary or advanced, and the evening technical institute, whether of an elementary or highly advanced type, serve very largely as staff colleges, and prepare the employé already engaged in the day for immediate or future promotion.

Raising the Compulsory Age to Sixteen or Seventeen.

Now, the future work of all these schools and institutions is directly or indirectly affected by the gross problem of raising the compulsory age to sixteen or seventeen. Here again, one has no room to state reasons, but only to give impressions. The growing dissatisfaction with the purely literary type of education and the ever increasing conviction in the practical-minded Englishman that our present system does not give value for money, makes one somewhat dubious of the powers of any Government merely to raise the age to the higher limit without specifying the type of education to be given. Moreover, it has been computed that the cost of such an extension of education, if given exclusively in the day-time, will mean in the provision of extra accommodation and buildings alone, something like £7,000,000 or £8,000,000 merely in London, let alone the increased cost for maintenance and teaching power. Of course, some half-

* This Paper was read at the Conference of Employers of Labour at the National Gas Congress and Exhibition on Tuesday, October 28, 1913.

time or sandwich system would halve or at least considerably lessen the cost. Personally, and here one can only baldly state impressions that are purely personal, one believes the raising of the age will take place gradually, and it will take place quite as much (if not more) by giving an increasing bias to necessary preparation for livelihood in our existing schools as by creating schools of an exclusively trade or industrial nature. If, as Mr. Legge of Liverpool has stated, the cost of one trade school pupil is equivalent to that of three elementary pupils, a wholesale extension of trade schools can hardly take place except gradually.

Increasing Trend towards Vocational Education in the Schools.

Taking, then, the schools as they stand, I believe that the more practical work done in the kindergarten and the gradual differentiation that is taking place between the curriculum of school and school, and especially between the town school and country school, will ultimately make the elementary school—if it is allowed sufficient room to experiment—develop into a more direct preparation for the future life work of its pupils. It must be remembered that the elementary teacher is far less hampered than those in higher grades of education by such unfortunate traditions as compulsory Greek. One is emboldened to make this prophecy because the higher elementary or central school has already received a technical or professional bias, at least as far as London is concerned, and the same tendency is observable in the municipal or county municipal school. Even the big public schools are seeing the advantage of developing such practical sides as engineering, while the modern Universities are largely technological, and even the older ones have now their engineering and agricultural departments. Again, in the trade schools, in the higher technical classes, and in evening work in general, especially in London, there is every sign of a yet closer *entente* with the business world.

And the School Appointments Board.

As has already been indicated, the schools are themselves establishing direct relations with employers. Many head masters of elementary schools, and practically every head master of a higher elementary or central school, is building up a regular connexion with employers around him. The heads of the municipal secondary schools in London are working on the same lines. But all this is taking place over and above the regular after-care and juvenile employment committee. Even Oxford and Cambridge have already their Labour Bureaux, but they dignify them by the title of Appointment Boards. I expect the big public schools will follow shortly, and the sooner they do so the better. Now all employers, great and small, can immensely aid in this work by themselves getting into touch with the type of school specially suited to supply the type of employés they need. Once they have established direct relations it is the interest of both parties that the pupils recommended should be of a satisfactory type. The employer wants the best, and the head master will only recommend the best for fear of losing his connexion. If the employer believes in supporting home industries, let him begin with the local school. If his business is on a large scale, let him get into touch with the local University, unless he has a son at one of the public schools or one of the National Universities. In that case, let him, if he will, get in touch with the public school or the University. If there is a certain prejudice against trade and industry, nothing will break it down sooner than the admission of the hall-marked public school or University man. That is the history of the social uplift or rehabilitation of many formerly despised callings in this country.

Value of Trained Intelligence.

And the business man has many encouraging precedents, not merely from abroad, but from at home, for taking into his business the carefully selected University product. We are told that 90 per cent. of the University men in America go into business. This would not go on in such numbers if they did not bring certain highly desirable qualities. Manners in certain businesses, like banking, count for something. And the worth of the really scientific trained man increases every year. I remember talking to a first class Oxford man some time ago who had lately joined a big brewing firm. On the day we met he and his colleagues, all University men, had just solved a problem in brewing which meant roughly a gain of £12,000 a year to the firm. They had, in fact, in one go earned more than the capitalized value of their salaries.

The Co-operation of Trade Unions.

But, and here I touch a thorny subject, it seems to me, if the school and the business world are really to come together for the common good, it is essential that not merely employers or Associations of Employers should take a lively interest in the schools, but also the representatives of the employés, the trade unions. This is, in fact, the type of organization that the Germans have adopted for their vocational schools, and the State of Wisconsin, which with Massachusetts has taken the lead in this matter in America, has recently constituted a board of industrial education to superintend the whole of this type of education, composed of three employers, three skilled employés, and only three educational experts.

Experience of London.

The London County Council has for some time past adopted a similar type of organization for the trades committees it has instituted for book production, silver smithing, tailoring, furnishing, &c., and the further precaution has been taken to see that the employers and employés on these committees are not mere individuals, but representatives appointed to their own Associations, while in one case, where a large number of trade unions were concerned, the trade unions were actually induced to combine and nominate a joint representative. The Committees have already been found of great use. Education appears to be a fairly favourable ground on which the two parties can meet and discuss. There seems much probability that in the long run these committees will be more and more consulted on all the questions that touch industrial and commercial education.

Possible Developments.

Perhaps it is not too much to hope that they will ultimately have a preponderating voice in the education of those preparing for the particular group of trades they represent. Some of these groups are very extensive, for instance, the book production committee, the first developed, represents such branches of the trade as bookbinding, printing, and the like, and concerns something like 30,000 people in London. Possibly in the remote future these committees will see to the supply of and prevent the over production of suitable workmen for their own particular trade. So far the boys educated in the schools under their observation have had little difficulty in ultimately finding places. On the contrary, in one case, both parties have been willing to regard the time spent in the school as counting towards the requisite period of apprenticeship. The natural growth of the system would seem to indicate that the pupils may ultimately, for various reasons, be regarded as apprenticed to the Council, and a whole system of Municipal apprenticeship may thus be evolved, while if the schools grow and increase in number, the cost of catering for all these different types of specialized education will be so great that Associations of Employers and Trades Unions will have to subsidize to a certain extent their own trade schools. That this is not entirely a chimera may be seen from the fact that the Jewellers' School at Birmingham has an annual grant of £450 a year from the Jewellers' Association.

The Bridge between Capital and Labour.

One looks forward to these committees to provide in the long run a golden bridge between the ever-widening chasm

between capital and labour. No impartial or would-be impartial outsider like myself can regard the present situation without the gravest misgiving. The much-abused feudal system, in spite of its faults, managed to subsist for several hundred years. Our present economic system shows serious signs of wear and tear after scarcely a hundred years of existence. A bare cash nexus between man and man is insufficient. We have somehow got to socialize industry, to organize it on a more human and humane basis, to revive, in fact, the sense of corporate responsibility of a man for his fellows. We need, in fact, a renascence of the best side of the old Guild spirit.

Summing up. Co-operative Effort. Value for Money.

To sum up, education for life alone is one-sided education, and education for livelihood alone is equally lop-sided. The two must be combined, and as far as possible interwoven. Science, with its endless divisions, subdivisions, and analyses, has "atomized" everything, and established a series of unreal watertight compartments in every species of organization it has invaded, so that in education the school has been thrust into one pigeon-hole, the parent into another, the employer into another, the employé into another. But all these are part and parcel of the social fabric, and must be once more brought into recognized organic connexion. Or, in other words, the schoolmaster must take more interest in the boy and his future career, and so must the parent, the employer, and the trade union. The State and the locality must have their say, but to leave everything to the State or to the locality is an abnegation of human responsibility in its worst form. Again, education has to be brought more into accord with the practical genius of the nation. Tell an Englishman that it gives a pupil a smattering of the Greek irregular verbs, and you leave him cold; but show him that it tends to give a man extra skill, greater appreciation and understanding of his work and greater ability to tackle it, and show him also that it has an excellent effect on character and physique, and he will be willing to speculate in it.

The Problem of the Hour: Ways the Employer can Help.

And finally we come down to the problems of here and now. There are at present in the field several schemes attractive and otherwise for compulsory education from fourteen to seventeen. Some of these are certainly ill digested, though possessing doubtless very excellent points, inasmuch as they ignore local conditions and contain features that make them not only distasteful, but difficult to work. In view of the imminence of such far-reaching changes, it is imperative alike on employers and associations of employers that they should individually and collectively possess as far as possible a first-hand knowledge and practical acquaintance of education in order that, when such schemes are brought into the field of actual politics, they may be thoroughly well equipped to put their view on the future education of the worker, and help to render the scheme in question as far as possible useful and practical. Otherwise they may have to put up with something they strongly disapprove of. They should, therefore, at the present time, make it their business to go out of their way to get into direct contact with the existing schools for both sexes, elementary, secondary, trade, technical, or University, either by joining advisory committees or getting into touch with the principals concerned. They should help not merely in getting their recruits direct from them, but also in seeing that the stamp of recruits the school turns out more nearly corresponds to the type they require. Again, in respect to those already in their services, they can greatly help to uplift the physical, intellectual, and economic conditions of those in their employment by the payment or refunding of fees, by awards of prizes, by checking and rewarding attendance at the evening institutions, and more especially by a liberal allowance of time off, and in the larger works by maintaining the number of their apprentices or by working through their association for what may possibly be the ultimate solution, co-operation between the association itself, the trade union, and town (and may be the Universities) in the establishment of a proper provision of apprentices in their own particular trade. In a word, in place of isolated *rapprochements,* we need an individual and collective *entente* between the school and the employer.

And, finally, but here we enter the region of pure hypothesis and conjecture, such a state of things may develop in its turn into some sort of system of Municipal apprenticeship.

THE POSITION OF PRIVATE SCHOOLS IN A NATIONAL SYSTEM OF EDUCATION.

Report of a Meeting convened by the College of Preceptors and held at the University of London on January 8.

The Chairman, Mr. Stanley Maxwell, opening the proceedings, said: Ladies and Gentlemen, we have come here to-night in order to have a practical discussion on a very important matter, and I should like to say at the outset that I hope the discussion will be of a practical nature. We want to find some way in which the private schools of the country can come into a national system of education, and I hope you will keep practice rather than theoretical considerations before you this evening. Many of us hoped, quite naturally and reasonably, that it would be possible for private schools to stand altogether outside a State system. That is an ideal which we have cherished for many years. We have reluctantly had to abandon that position. Personally I do not think now there is any chance of private schools being strong enough to stand absolutely and entirely outside the State system, and therefore we have to do what we can to come into the State system on terms which will allow us to maintain as large an amount of our freedom as we can possibly manage to get. When we went as a deputation to the Board of Education from the College of Preceptors and the Private Schools Association some time ago, the officials of the Board appeared to be fairly friendly. However willing they may be to recognize private schools and to know something about the work which those schools are doing, our impression was that their knowledge was *nil.* It did not seem to strike them that they, as the Education Authority of the country, ought to have made some sort of inquiries and to have found out something about the work of the private educational establishments of the kingdom. They put the whole onus upon us. Largely because of that, the College of Preceptors and the Private Schools Association in conjunction have been undertaking a survey of the private schools of England. A great many forms were sent out and a fair number have been returned. When statistics have been completed the Committee will deal with them. Eventually, in some form or another, they will go to the Board of Education, and then, at least, they will not have the excuse of saying that they know nothing whatever of private schools.

At a meeting of this kind I do not think I need say anything as to the importance of retaining the private schools in a national system of education. Nearly all educationists, I think, are agreed that it would be a terrible misfortune if private schools were to be absolutely stamped out. We are fighting so that we shall avoid, if possible, a complete State system with nothing at all outside it. Those who know anything about the countries where such a system is flourishing will realize the great evils, educationally, which arise from such a system. We hear a great deal about the magnificent systems of Germany and of other Continental nations, but I can assure you that many Germans themselves are not satisfied with their system. It has been amusing, indeed, to hear some of them pointing to England as almost the ideal example, while some of our educationists are all the time looking the other way. We do not always see what is best in our own country. There is a type of mind which always thinks that things abroad are better. If the complete State system which we have in education of the elementary type had been a glorious success, there might be some reason for

the people who say, "Let us at all costs have a complete State system in secondary education." Practically all thinking people who know anything about the subject are agreed that our education of the elementary type is a dismal failure. It seems quite extraordinary that, knowing the dismal failure which has been made there, they are pressing for the same kind of education in the realm of secondary education. Those who have read the reports of the Moral Education Conference and the inquiries made beforehand will remember what the people who made that report said about the utter lack of power and personality of the teachers abroad, how those qualities were utterly crushed out by the State system. Now, we hold that personality is the greatest factor in education, and any system which does not allow that power full scope seems to stand self-condemned. I think I need hardly say—but I will say it because I feel it very strongly—that the one supreme end of education is the training of character. Everything else must give way to that. It matters comparatively little what we teach people compared with what sort of people they are when they go into the world. And here again the State systems of the Continent stand self-condemned. You have only to read the reports of that Conference to realize fully what a State system means in this, the most important thing in all education. Above everything else, we must have efficiency. That we are all agreed upon. We all admit that the inefficient schools ought to go. Of course, it is tacitly understood by our opponents that the only inefficient schools are the private schools—all or some, according to the type of mind of the person in question; but to no one does the inefficient private school do more harm than to the efficient private school. Quite apart from education, and merely in our own interests, we want those inefficient schools stamped out. I should not like it for one moment to be thought that we are here to make any attempt to bolster up inefficient schools. It is exactly the other way about. They do us more harm than they do anybody else.

It is obvious that, if we are to come into a State system of education, there must be, to a certain extent, something in the nature of inspection. That we must agree to, I think, whether we like it or not, and I do not think it need be as bad as many of the more timid spirits seem to think it must be. They are quite right in saying we ought not to have the same kind of inspection as the grant-earning school, because nobody supposes that there will be such grants to private schools, or, at least, that is on the knees of the gods. It is reasonable that we should not have the same rigid type of inspection which public schools should have. I think we have a right to ask that inspection should be reasonable and sympathetic. That is the great thing, I think—sympathetic. You all know, you must have read, the gross libel on private schools which the Minister for Education uttered not so very long ago. It is simply disgraceful that he should say that private schools are exactly the same as what Wells, in "Kipps," called "Cavendish Academies." You might as well say that all Nonconformist ministers are "Chadbands." Each case is an extreme type. There may be "Cavendish Academies," but that is no reason why the whole profession should be tarred with that very objectionable brush. Of course, any inspection should include sanitation, to see that healthy conditions are provided. That we should all wish, and, personally, I think that is about the only kind of inspection that the Government has a right to demand from us. I do not think that they will stop there, but that is the greatest and the most important thing. They have a right, I suppose, to say something about our staffs; but there again, if the Teachers' Register, which we all hope will be a success, includes the names, that should be a sufficient test without anything in addition. It has been suggested that they should have the right to control our curriculum. Personally, that is a thing I should oppose very strongly indeed. No one knows better than we what the needs of our districts are. We all know, we must know, very much better than an Inspector what is the need for our school, and, in addition to that, it seems to me, if you put all curricula into a sort of rule, you are taking away one of the very best chances of educational experiment. It is admitted that the private schools have done a fine work in the important and valuable realm of educational experiment, and if you hamper the curricula of individual head masters or head mistresses, you are doing a great deal to stop very useful experiment. I certainly should like that not only should there be inspection, but there should be some general idea of the standing of a school in a neighbourhood. If, for instance, you want a doctor or a solicitor, you consult him entirely on his general reputation for skill, and it seems to me something of that kind might be applied to a school, and, if it is possible, would be a valuable test. If the Government wants to take away all our liberty, it seems to me we have little ground for existence at all. We must be free to work out our own salvation. We must be free to act as a kind of antidote to a universal State system. The Board of Education—the official mind—naturally likes a very smoothly working machine; but you cannot reduce education to mere machinery or make it like a railway time-table or a Post Office Guide.

The lack of security of tenure, which all private-school people must feel at present, is a great detriment to our work. A great deal of money might be invested at once in private schools in England if owners had reasonable grounds for thinking that they had some security of tenure and would receive some return for what they put in. This uncertainty makes it almost impossible for us to put money into schools, and so it reacts very much against private schools.

In conclusion, I should like to urge upon you the extreme importance of keeping a large number of different types of schools in the country. It would be an evil thing if, as in France, the Minister of Education should say at such and such a time every teacher in the land should be doing a certain subject in a certain way. We must maintain our different types and do all that we possibly can to keep our education in this country what it has always been—free. We have not been hampered with a lot of State conditions. That is an ideal we have to strive to maintain, and unless we can do that we have very little reason for existence. I hope something practical and definite will come as the result of this meeting, and that we shall be able to formulate some policy which will enable private schools to remain in the State system and at the same time to retain a large measure of freedom.

Mr. J. W. Longsdon said: If I seem to repeat what our Chairman has said, in various particulars, it may be because he has spoken such obvious truth that any other speaker who follows him can but, to some extent at any rate, take the same line. My desire is to lay stress specially upon the line of action which, in my opinion, should be taken by private schools if they are to form a part of the national system of education. The prevailing apathy of principals of private schools in this respect is only, I fear, too obvious. The other day I made the acquaintance of the head of a private school who told me that he did not believe in educational associations and never intended to join them. His school buildings were adequate and his staff was qualified. He had no reason to fear publicity. With him it was a tradition to stand aloof from all societies. I think this tradition is widespread, and, in my opinion, it must be broken down, if private schools are to continue in the future to do the valuable work that they have done in the past. Until recent years the action of the State in reference to education was mainly confined to the elementary sphere. The State decided that preparatory education up to a certain age should be compulsory. It took measures to see that elementary schools were provided in all areas. It did not, however, decree that all children must attend the State elementary schools. Parents were left free to pay the fees of a private preparatory school. Over these private schools the State claimed no right of control, and it assumed no responsibility for them. The result has been that, with the exception of private schools for quite young children, up to the age of five or seven at the most, in the elementary sphere private schools have ceased to exist. In the secondary sphere the control of the State has been of less wide extent; about a thousand secondary schools are under State control and receive State grants. There are said to be some twelve or fourteen thousand other schools of which the State has no official knowledge. These numbers are probably an exaggeration, though private schools are undoubtedly many. There are signs that the State is likely to extend its influence in the sphere of secondary education. A national system means, I take it, that the State will make it

a duty to see that opportunities for all grades of education are provided in all areas where the population justifies such provision. The State can do this either by providing State secondary schools or by utilizing the private schools that already exist. A national system could not, I think, admit the continuance of a group of schools entirely outside that system. It is, then, my opinion, that private schools must become part of a national system, or else run a very serious risk of being gradnally crushed out. The Board of Education and the Local Authorities express willingness to consider the claims of private schools, but they say that, officially, they are ignorant of such schools. It would seem very reasonable that either the Board or the Local Authorities should institute an inquiry, and find out exactly what private schools exist, what are their resources, and how far they are contributing to the supply of efficient secondary education in the area. This may seem reasonable, but I greatly fear that there is little, if any, chance of such an inquiry being carried out by the authorities. The attitude of the Board is practically this: If you will tell us all about yourselves, they say to the private schools, we will gladly consider the information and see how you can be fitted iuto the national system. The work of making this inquiry seems to be thrown upon the private schools themselves, for, if they neglect it, there appears to be no one else to do it; and, if the information is not forthcoming, private schools may be ignored by the authorities, and have to meet still keener competition from schools aided by public grants than they have to do at present. I was rather disappointed to hear the Chairman, speaking of the inquiry by the College of Preceptors and the Private Schools Association, say that only a fair number of inquiry forms had been returned. But not only must private schools organize themselves, in order to press their views upon the country, but at the same time, they must, as it seems to me, define to themselves more exactly their scope and aim. The term "private school" is, of course, a wide one, and includes many types. There is, for instance, the group of schools that prepare boys for the public boarding schools. This group is well defined and well organized. It is likely that before long those schools will ask for inspection from the Board of Education, and will take a clearly defined position in the national scheme. Other groups of private schools will, perhaps, follow this example, and define their aims more closely. And they will see to it that their aims are consonant with their resources. A school might well decide upon its age-range, the age of admission and the leaving age; it might decide its curriculum in reference to the qualifications of the staff and in reference to local needs. There might be, and I think there will be, far more differentiation and classification among secondary schools. When a school has decided upon the exact aim it has in view, and has taken care that its resources are adequate to carry out that aim, then the Local Authority can classify that school in the educational scheme of the area. I venture to say, then, that the first essential step for the principals of private schools is to decide upon the scope of their work. The second step is this: that all principals of private schools must unite in order that the claims of private schools to continue to do their work may be brought to the notice of Parliament and the country. Information should be collected as to the position of buildings, the number and size of classrooms, the amount of space available for games, the number and sex of pupils, the age of entry, of leaving, the average duration of stay in school for, say, pupils leaving during the last five years, the number and qualification of the staff, and an outline of the curriculum. Private schools can, I believe, only claim with reason to share in the duty of educating children if they maintain a certain minimum standard of efficiency, and if they form part of a national system. An important point to consider is how they may form part of the national system and yet preserve a measure of freedom. This, of course, is the most difficult point of the whole problem. I am convinced, just as Mr. Maxwell is convinced, that there must be inspection. I think that in the future the State will undertake to guarantee to parents that all educational institutions are efficient—efficient, that is, so far as efficiency can be guaranteed on paper. The State will go a step further than was done in the case of elementary schools half a century ago. It will not only provide efficient secondary schools, but I think it will say that any institution offering to give education must be efficient, so far as paper efficiency can be shown. The influence of the teachers and of the life of the school cannot be reduced to certificates. There must, therefore, be inspection, but there must not, of course, be complete control. Any attempt to exercise complete control over all the details of school work would mean that the private schools would lose the freedom and independence that are such valuable and necessary features. The inspection, therefore, must be limited to two points: the adequacy of buildings and the qualifications of staff. In all other points private schools must be absolutely free to act as they think fit. If private schools will ask for inspection on these two points; if they will provide full details of their resources and aims; if they will rouse themselves from their aloofness, and combine to instruct the country upon the value of the work they are doing—then they may take their place in the national system of education. If they do not do these things, then I greatly fear, as has already happened in the elementary sphere in England, and in the intermediate sphere in Wales, the greater part of them will be slowly crushed out of existence—a result that would be detrimental to the education of the country.

Mr. G. P. Dymond said: Mr. Chairman, Ladies, and Gentlemen, I shall stand but a very few minutes between this audience and Prof. Sadler, but I am glad of the opportunity of stating a few conclusions to which, as a private-school master myself, I have come by reason of some thirty years' experience and the fact that I have had opportunities of seeing the working of private schools, not only in our own country, but in the United States of America, where at one time, it was customary to tell us, there were no private schools, but where I found a great many as I moved about. I do want to follow the Chairman's advice and say what I believe is practical and practicable in this matter. We are anxious to see our private schools in some way brought into close touch with a national system of education. I think, first of all, private schools can supplement the State system in various ways. One of the first, and perhaps one of the most important, is by making room for children who do not fit in with a State school. Mr. C. Lang pointed out at the time of the first Mosely Commission that there had not been a sufficient investigation of that part which was outside the State system, and which made such provision in the States. We have to deal very often with a number of delicate children in their early years who become backward in learning, some of highly nervous organization and who have to be handled in a way the public school generally cannot handle them. I do not say we want to be left with all the lame, the halt, and the blind, because there would not be sufficient encouragement for the teacher to work amongst that class only. But there is one factor—our schools have to be largely self-contained. Our children come in at an early age, go right up through the school, and take, in some cases, all their education in the same school. Some may say that is outside our system, but I think there are many instances in which it has proved to be of great advantage. Then we have to remember also that not only is there a class of pupil which has to be dealt with outside the State system, but there is also a class of teacher that needs to be dealt with outside the State system. A good many of us have found that, after the State has done its best for the teachers it trains, there are some over, and, but for the opportunity of our schools, they could hardly find a footing in any system of education—not because they were always the worst, but because they had not a chance. Then the private school gives a man a chance to fulfil a special mission if he feels he has one, and I speak with experience, because only recently I have had two teachers under my observation. I have seen them come in disappointed men, but they have had this opportunity, and then they have gone back in some cases because the Board of Education claims them back again, and, as one man said to me, "I would rather have stayed, but the State says I must go back." I am glad to say he has been able to go back with a hearty recommendation to find a sphere congenial to him. After all, is not the test not one of what training a man has had, but how he can do his work after he has been trained? Is not a few years of practical experience in teaching, after all the theorizing is done, that which tells whether a man is fit for the work? I know trained teachers who are unfit; I know untrained teachers who are fit. An-

other point: we want to give some freedom of action on a wider scale than the State system affords. We want room for experiment. I am tired of hearing private schools spoken of as experimental grounds. Experiment is certainly one of the functions they fulfil, but we are not always experimenting. Sometimes we are ridiculed on account of this term, but we certainly supply the application of teaching to special local needs. Often a locality has something about it which determines the type of its own school, and parents have certain desires which they have the opportunity of getting applied in connexion with a private school, and there is a greater consideration also of individual needs and peculiarities, Another function is that they may provide what I should call a healthy reaction upon State schools. No doubt State schools are acting upon private schools to-day and set a standard of work, which they do well to follow to some extent, though not entirely. At the same time, the private school reacts on any school in its own neighbourhood. If there be a State school, the State school narrowly watches what the private school is doing. I have been surprised sometimes by the readiness of some State schools to assimilate themselves with private schools. You will find details are copied, the school attire even is imitated—everything is done to make the school have something about it which is seen in the private school. I have asked myself why this should be, but certainly we do react healthily on State schools in this way. With regard to efficiency—that blessed word that is so elaborately undefined—well, there are schools that cannot, perhaps, prove themselves efficient, but parents have their own standard of efficiency and know whether or not their boys or girls are "getting on," as they term it, and they are not going to support a private school unless it shows itself, in these days of grace, to be efficient according as the word commends itself to their judgment. In regard to expenditure, I wonder if any private schools have been taken over that have been found to be unworkable when the cost has gone up, but which were workable beforehand? The State uses public funds, and the private school master has to be careful on the score of economy. Then, it gives a larger freedom of choice on the part of parents where they are able to choose between other schools. Why do they choose? There is, I think, a strange, undefinable something which we call "tone." It may seem artificial, but parents know full well what it means. If there be an individual, whether schoolmistress or schoolmaster, who has some distinctive features they will know, in the publicity of the life of the locality, whether they care or do not care to make choice of that particular school; and, if they choose, it is for a reason, and they are purposeful individuals who inspire people with a certain amount of confidence with regard to the training of their children. Now, I want to know how to secure some of the ends in view, and I have noted just a few points for our consideration. I think, in the first place, if they are to be part of a national system, to be definitely recognized and taken into account as the Report of the Royal Commission took them into account in 1895, nearly twenty years ago, private schools should be secure against unfair and unreasonable competition on the part of Educational Authorities by putting up new schools without inquiring first of all how they will affect any private schools working satisfactorily in the locality. Some schools have been seriously hit in some parts of the country. Ruthlessly have they been treated, not because those at the head, and engaged in the work of instruction, have been inefficient, but simply because there was a desire to have a public school in that place, and it did not matter at all what became of the men who, perhaps, had invested their all there. Now, that does not appeal to our sense of justice. Where these schools are found efficient, as they will be if you put them side by side with public schools, which also, having all the luxuries of State endowment and rate aid, will be found efficient in perhaps other respects, would it not be possible, if the deficiencies of private schools in any special direction be noted, for the State to undertake to make them good, and not to require that the whole control of those schools should be granted because certain funds are given, but to undertake, for instance, if there be a science laboratory wanted, and the authorities of the private school cannot bear the cost, to give some aid in the establishment of such a laboratory on condition that the control of the science section shall be shared with the authority that makes the grant, not demanding that the whole of the school curriculum shall come under the control of the authority, but requiring such supervision over that section towards which aid is directed? I think arrangements of that kind have been made in the case of some denominational schools. If there be extra scientific teaching or modern language teaching required, which is not always easy to supply from an ordinary staff, it might be possible to have a teacher or two in the locality whose duties could be so arranged that they might be able to visit and render assistance to private schools. The last point I want very strongly to emphasize is that there should be no disability. The Board of Education professes to have a desire, a parental desire, to foster all the schools of the country. If that be so, there must be no disability as to scholarships, training, or examinations for the Civil Service, and there is an indication that certain attempts are being made in that direction. There must be no disability put either upon pupils from private schools or upon any teachers when they may pass from one school to the other simply because they have been in private schools. I am speaking now of definite instances in my mind. I know it has been made impossible in certain localities for any pupil who has had his education in a private school to receive an appointment as a teacher, for instance, or to go on for higher training as a teacher unless he went into a State secondary school to begin with. That seems to be very unfair. We have to join in paying rates, for we are all rated to the full, and I think our pupils should not be put under disabilities by reason of facts over which we have no control, while the Government makes it practically impossible for us to do better than we are doing. I will conclude with the hope that I have not been extravagant in the statement of my points.

Prof. Sadler said: Through the misunderstanding as to the time of our gathering I missed the pleasure of hearing the greater part of my friend Mr. Longsdon's speech, but what I was fortunate enough to hear interested me deeply, and especially one sentence, which I think ran as follows: that in his judgment the State in future would undertake to guarantee to parents that all educational institutions are efficient. Mr. Longsdon safeguarded that statement by one or two qualifications, but if I do not misunderstand him he did hold out to us the expectation that, sooner or later, the State would undertake to guarantee to all parents the efficiency of all educational institutions in this country. Now, if I may, I should like to discuss this question, which is indeed fundamental. My own feeling is that it is not necessary for us in England, in existing circumstances, to require by law every school to hold a licence from the Civil Authority. In saying that, I take it for granted that every householder who keeps a school—and it is a little difficult to define what a school is—that every householder who keeps a school should, like all other householders, and *qua* householder, not *qua* school keeper, be required to comply with the by-laws of the local Sanitary Authority in respect to provision for health. I am not sure whether Mr. Longsdon gave any reference to the past, to English educational history. If I cover ground he has already dealt with, I hope he and you will excuse me. You will remember that in England at one time and for several generations schools — or, rather, any person who proposed to keep a school — had to obtain a licence from the Civil Authority. May I go a little bit further into that? The object of this restrictive law was, I am persuaded, much more social and political in purpose, though ecclesiastical in form, than really theological. The object of this restrictive law was to secure uniformity in religious belief, with such social and political advantages as were thought to follow from such uniformity in religious belief, and by the discouraging of education under Nonconformist influences and in Nonconformist principles—much more, I believe, in the minds of those wise, wary eighteenth-century statesmen for fear of certain political consequences than for much regard for theological disputes. Now the English law was harassing both Roman Catholics and Protestant Nonconformity, but, in a great degree, it was inoperative. It embittered religious differences. It weakened the intellectual unity of our national life. It was habitually evaded. It fell gradually into desuetude and it produced

torpor or helped in producing torpor in the privileged category of schools without achieving its object of securing uniformity of religious conviction or a general political purpose amongst the citizens of the country. Now we shall agree that at the present time we do not aim at enforcing religious uniformity. Any Cabinet which set to work to do that would find that it had embarked upon a rather stormy career. But there are other possible reasons for establishing State supervision over all the schools—first, a desire to raise the intellectual standard of the teaching given to all the younger generation of citizens, and, second, the protection of the established Government from the dangers arising from nurseries of political opinion hostile to the principles upon which the Government is based,—I do not mean a passing, party, changing Government, but hostile to the whole structure of the established government of the country. In Prussia, in the last quarter of the eighteenth century, and I believe I am right in saying in other parts of Germany, schools, as schools, were, by statute, placed under the supervision of the Civil Government, and I believe I am not wrong in saying that that statute still remains in force. The object of this restriction was, and still is in Prussia, partly the intellectual improvement of national education and, incidentally, defence against what the Government regarded, or regards, as anti - social tendencies which, in its judgment, should not be allowed unrestricted opportunity of propagation among the young. Both of these seem to me serious reasons deserving our respectful consideration. From certain points of view it must be admitted that the policy adopted by Prussia has met with success. There is among Prussians a greater precision of educational aim than there is with us. I suppose, but I cannot speak with sufficient knowledge to be certain, there is less of what some people call educational charlatanry or imposture. Perhaps, if we lived in Prussia, we should find something of that even there. There is certainly a greater concentration of national effort upon clear types of educational institutions. But—and here, with deference, I differ from my friend Mr. Longsdon—so far as I am able to judge, we in England have more to gain in political stability from freedom than from restriction. Ours is a bold policy, but, in the long run, I submit, liberty of teaching and of discussion—which itself is an important part of national education—produces less inconvenience and weakness than, in our circumstances, would be likely to result from severe restriction and repression. On the intellectual side, I think the case for Government interference—I mean for the attempt on the part of the Government to guarantee efficiency of every school—is less strong than it seemed to be a hundred, or a hundred and ten, or a hundred and twenty years ago in Germany. There is at the present time no clear agreement as to the limits of the course of study which it is wise to impose on young people at each successive stage of their education. The intellectual presupposition which underlay that part of Prussian policy that made every school the object of governmental concern was that wise men knew the particular circle of knowledge which every pupil at different stages of his educational career ought to have acquired. In the sphere of higher education that theory received a classic sanction. The notion was—and it is one of which we should speak with great respect—that during the period of school training there should be in education every ingredient necessary to subsequent adult culture, and therefore there should be training in letters, training in religious belief, training in the history and geography of your country and of the world in which it is set; training in mathematics, and, as science advanced, training in the elements of physical science. The difficulty before us now is that these subjects, with the immense increase in modern knowledge, have tended to become too large to be compressed within the period of instruction available even during the course of secondary education. Secondly, it has become clear that many minds, in the long run, develop into finer instruments if they are allowed a much longer period of growth than any time of secondary or even University education will cover. In other words, we are beginning to realize that the long course of adult self-education and of adult experience is relatively much more important than the pioneers of modern education conceived. Further, it has become clear that if any syllabus of varied instruction is imposed by civil authority upon the schools, it is possible by expert and selective teaching to bring pupils to a point which does not necessarily correspond to the real maturity of their inner judgment, and I feel myself, and perhaps others present may share with me the feeling, that one of the greatest defects in this modern system of education, not much more than a century old, is the constantly narrowing place which it assigns to the slow but fruitful process of self-training on the part of the pupils. For those reasons, thus very briefly put, my judgment is that we are not in England, and I doubt whether anybody else elsewhere is in the position to determine, with that confidence which German statesmen felt a hundred and ten years ago, what circle of studies we shall require pupils to pass through in each stage of their education. In other words, when we probe the word, we find we are not sure what we mean by educational efficiency. Well, if we are not sure what we mean by educational efficiency, what is the precise significance the Government would attach to the declaration that it would guarantee to all parents the efficiency of every educational institution? It has been my lot to serve on two public bodies which have had, at any rate, to face this question, whether or not they determined at last, having looked it boldly in the face, to pass it by. One was the Secondary Education Commission, under Mr. Bryce, and the other the Consultative Committee of the Board of Education dealing with the question of school examinations. In both cases we tried to get at a formula which should express what, on the intellectual side, our secondary education ought to aim at. We tried very hard, and in the end we determined to leave the problem to the decision of other people. My impression is that this doubt is fundamentally important to this question, and that therefore on the intellectual side there is a great deal to be said for leaving a good deal more liberty than German statesmen of a hundred and ten years ago thought in their case to be well. If this view be granted, it follows that it is not expedient to deprive teachers who are unlicensed by the Government of the right of suing for fees in Courts of Law. When registration of teachers was first proposed in this country, it was always proposed—I mean, by the bodies of teachers who were really responsible for the idea—that unregistered teachers should be deprived of this right of suing for fees in Courts of Law, and that was regarded as the legal sanction of the scheme. Now, in spite of the dangers of educational imposture, which I am far from wishing to underrate, I incline to think that the balance of advantage lies on the side of not putting this legal disability upon teachers who are not registered. Education is so much more of an art than a science that it would be unwise to attempt to confine full freedom to teach to those persons who have conformed to what must be, in the main, an intellectual qualification. We all here agree that the greatest painters, some of the greatest painters, have been men with the widest liberal culture; but are we going to forbid anybody to paint pictures who has not registered as an artist by proving that he has taken a University degree? Now, there is a much closer analogy between the art of painting and of teaching than is at present generally admitted. It is certainly desirable to emphasize the value of intellectual qualification and to encourage intending teachers to acquire that qualification. Probably most of us here are all intending, if we have not already carried out our intention, to submit ourselves for registration. But the conditions of registration must necessarily pay comparatively little regard, if any regard, to the pastoral gifts of a teacher, to his temperament and personality, and, as Mr. Dymond reminded us, to his subsequent development in the course of long experience. Now, as temperament and personality, pastoral gifts, and the growing insight of personal experience are highly valuable parts of a teacher's true qualification, it is probable that there will always be excellent teachers outside the register, and that the register will include many teachers whose later work has not fulfilled their earlier promise. Mr. Dymond has spoken of the claims of private schools on public consideration. It fell to me during two years to make, on behalf of certain Local Education Authorities, surveys of the higher and secondary schools in their district, with the help, which I most gratefully acknowledge, of friends like Mr. Holland and Mr. Longsdon. We did our best in all cases to get for the Local Education Authorities all the information and all the knowledge we could of the private schools in the district. But at most

two, and I think only one, of the private schools in all those great areas which my colleagues and I had to advise about, has since been actually drawn into the system of public education in the area. And this is what has left a deep impression on my mind: in a large number of cases the exclusion of the private school was at the request of the private school teacher himself or herself. It is much more difficult than one might think to bring a private school into the mechanism of public local administration. But I would urge that no Local Education Authority ought to plan a new public school without making exhaustive and sympathetic inquiry into the nature of the provision already made. Further, no effort should be spared to bring into the work of the new regime deserving and competent teachers whose previous services have been in private institutions in that area. We have now in England among private schools six great groups. There are preparatory schools for boys, mostly boarding, some day, leading up to the public school, age limits nine to thirteen or fourteen; second, boarding schools for girls, largely in salubrious places, dividing themselves into two categories—those with high fees and those with low fees; third, boarding schools for boys running up to an age limit of sixteen or seventeen or even eighteen or nineteen; fourth, day schools for young children, largely attended by boys and girls together, the leaving age of the boys being generally lower than that of the leaving age of the girls; fifth, day schools for older children, though with junior classes generally boys and girls separately; sixth, co-educational schools for older children. In these categories the preparatory schools for boys hold a unique position. That is the one case in which private enterprise, though not without exceptions, practically fills one necessary part in an important layer of national education. I think it would be difficult to over-rate the value of the services rendered to girls' education by many private boarding schools. And I would say the same of some schools under private management for young children, boys and girls together. I would submit for your consideration these suggestions: that, where a private school fills a place in the national system of education which must be filled in the public interest, the private school must admit inspection and comply with the public requirements of the Local Authority and the State combined, or, in the case of non-local schools, of the State only, or be supplemented by a provision of public schools. If that is accepted, it seems to me to follow that the preparatory schools for boys which are introductory to the great public schools will find it expedient at no distant date to submit themselves to Government inspection. Second, where a private school is supplementary inspection is desirable, but not necessary. Third, where a private school exists as a protest against a dominant public ideal, registration or inspection would be to it a peril to its *raison d'être*. Now, we have not many schools like that in England at present, because nothing could be more considerate and wise than the temper of mind of our great educational administrators; but I can conceive a time coming when there might be a dominant public idea in education which it would be the duty of the educational pioneer to defy. And that has happened before in this country. In the eighteenth century, as I began by saying, for many good reasons, as well as for stupid ones, the English Government attempted to suppress education which was not cut to its own pattern. Men who believed in their own ideal of education refused to be silenced, and that was the origin of the great Nonconformist academies, and without the Nonconformist academies the whole history of English secondary and higher education would have been comparatively sterile. These men ran every risk. They began in little remote Yorkshire villages where they would be unlikely to be observed. They went on, increasingly bold as they found the claws of the State were not so sharp as they feared. They went on building up, in accordance with their principles and free from interference, what were really private Universities and private higher secondary schools, and one of the greatest of all the educational leaders in English thought, Joseph Priestley, had his being as a teacher in such a free Nonconformist academy as that. It is to Priestley that we owe the most trenchant and concise of all pleas against well-meaning attempts on the part of the State to assume that it alone knows what is good in education and what education is good for its citizens.

SCHOOL LIGHTING.

By Daniel H. Ogley, M.Eng., Royal Technical Institute, Salford.

At the present moment school lighting appears to be attracting attention in practically all parts of the world. The formation of the Illuminating Engineering Society has done much to awaken interest in this important subject, and it has been established beyond doubt by the returns of eyesight authorities that eye trouble is increased during school life, the unsatisfactory lighting being in great part to blame.

In Germany the premature decay of eyesight amongst scholars, as evidenced by the increasing number of spectacle wearers, called forth from the German Emperor some short time ago the remark that man was not born to wear glasses. The general conditions were such as to call for rigid examination, and not only was careful and scientific lighting insisted upon, but rules were laid down by eminent authorities, Prof. Weber of Keil being perhaps the most prominent.

In our own country an examination of the reports of school medical authorities will make it clear that a large number of children are defective as regards sight, and it is only recently that the London County Council, in undertaking an official examination of the health of all children in their charge, decided that the examination should include an investigation of the lighting conditions of the buildings in which the children spent their days.

This clearly indicates that lighting conditions are felt in great part to blame for the ever increasing number of cases of defective sight. Some argue that the percentage was as great or even greater in earlier times, and that it is only the medical examination of our own time that is giving voice to the complaint; but to anyone who has made a study of illumination and of the effect of sources of high intrinsic brilliancy on the nerves of the eye, it is felt that unscientific lighting conditions are at fault.

The science of illumination has been, in comparison with the attention that has been given to other branches of the subject, woefully neglected. Gas and electric engineers were until quite recently much more concerned with the question of obtaining an additional 1 per cent. from a boiler or dynamo than with that of the correct disposition of the light units, and this in spite of the fact that a much greater saving could easily be effected by anyone who understood the requirements of good illumination. It is felt more and more strongly that what is really needed is an illuminating engineer, apart from the gas or electrical engineer, although the latter by special study could, no doubt, qualify for the position of the former.

School lighting, since it is in their school days that children are in the most easily influenced stage of their development, needs special attention, and one cannot help but feel that the contractor with the rule-of-thumb methods should be banished and his place taken by the expert before further damage is done. The medical man examines the eyesight of the child, finds that it is defective, gives an order for certain kinds of glasses, and proceeds with the examination of the next child. The cause is hardly ever inquired into, though in many cases it would be found that incorrect lighting of the premises was in great part to blame. If, in addition to the examination of the children, the school was also examined, and the effects of the light units carefully studied, much more good would undoubtedly result on the removal of the cause of the mischief. It is quite easy to arrange for an adequate illumination, although a departure from the recognized standard is to many people, no doubt, a crime.

The *Electrical World* is emphatic in stating that illumination cannot be neglected by medical authorities, and in an important article mention that "although there is yet much to learn regarding the effect of light on vision, the importance of good illumination and the prejudicial effect of bad lighting on the eyesight of children scarcely requires emphasis."

Insufficient light accentuates the difficulties of fine work and imposes a strain even on the adult, while it is specially prejudicial in the case of children. Dr. Kerr, Medical Officer to the L.C.C., in a recent report says: "A normal person of middle age will distinguish characters on paper in a poor light with greater readiness than a child because the characters are more familiar to the adult and so much more readily re-

cognized. Conversely, a child requires a better light to read by than does an adult, to whom reading is second nature. From a large number of experiments, the least illumination permissible on the school desk of a child has been found to equal one foot-candle." Regarding the latter figure, the author does not agree with the report published, a minimum of two foot-candles for reading and writing being in his opinion required, while for drawing and distinguishing fine detail from two to five foot-candles are necessary according to conditions.

It seems to be unfortunate, but too true, that the eyesight of children becomes worse during their school career, and, in America at least, special efforts are being made to check the effects. A controlling board has been appointed in many cases, and the architect, the medical officer, and the lighting engineer are afforded opportunities for co-operation and interchange of ideas. This is certainly a step in the right direction and should be followed by every country. A permanent committee might even be appointed to deal with the whole question, sub-committees controlling each particular district, and no plan being pursued without the lighting question receiving adequate attention.

To understand the conditions, a study of the eye and the effects of light upon it is necessary.

The eye has through the ages become used to light from the sun—that is, to light coming from above. The source itself is not visible, and objects are seen by reflected and diffused light only. The entrance into the eye of intense light from any other direction causes great discomfort, and may result in injury to the nerves. This is because the eye has no protection from light from any other source but above, and at once it becomes evident that the sources of illumination should not be within direct vision of the scholars. That this is not so is apparent on viewing the lighting arrangements of any school, for in almost all cases the lamps are hung so that direct light can enter the eyes of practically the whole of the class.

The normal eye can regard with equanimity a source whose intrinsic brilliancy does not exceed, say, five candle-power per square inch. An ordinary candle placed within the line of vision will produce no harmful effect. The intrinsic brilliancy of the poorest carbon lamp is over fifty, and in the case of a good metal lamp may equal eight hundred candle-power per square inch. The result of placing such a lamp in the line of vision is that the pupil contracts in order to protect the retina from the entrance of too much light: dazzling results, and the rest of the field appears too feebly illuminated for clear and easy vision, although it might be quite well enough illuminated under ordinary circumstances.

It cannot be too strongly emphasized that exposed light sources of great intrinsic brilliancy constitute a severe source of eye trouble when placed directly in the field of view, and should be avoided under all circumstances. Evening students are subjected to this annoyance to a much greater degree than day students are, and when so seated that a lamp is in the direct line of vision, find it practically impossible to distinguish characters on the board. The excessive brightness produces an intense image, and causes injury to the retina, while the pupil, contracting to protect the eye, reduces the amount of light entering from the board, and so renders the characters indistinct. Lecturers have been known frequently to complain of headache and eyestrain after evening lectures, and in nearly all cases it has been found that the board was illuminated by means of a row of headlights placed directly within the field of view. The field may, on the other hand, be too feebly illuminated, and in this case, the images not being distinct, the eye grows fatigued in its effort to sharpen them.

The question arises as to how lights should be placed to avoid direct vision. It is, of course, possible to place them at a sufficient height to avoid any but occasional glimpses of them; but, if the direct system is in use, the better plan is to insist on adequate shading. The shades may be made to entirely enclose the lamp, and thus, by very largely increasing the globe area, the surface brightness may be reduced to the limit specified. If the lamps are not entirely surrounded by the shades, the lower part should be frosted to avoid even a momentary direct view of the filament, while further, if no shades at all are in use, total frosting of the lamps should be insisted upon.

The inverted system has much to recommend it. The light is all thrown on the ceiling, which latter reflects by diffuse reflection, the source itself being completely out of the field of view. It is important, in view of the addition to the effective candle-power to be obtained, that the ceiling and walls should be of some light tint in preference to a dark one, and the reflection coefficient of the various wall materials requires careful study. When used in conjunction with the inverted system, arc lamps give trouble and require constant attention, so that for schools with no skilled attendant the use of glow lamps is to be recommended. The absence of shadows is rather wearisome, and objects appear flat, tiring the eye in the effort to perceive them correctly. The inverted system, with a certain amount of direct lighting to produce shadows, is perhaps better.

The illumination of the board is of special importance. Headlights are injurious to the lecturer, and produce glare if there is any polish on the board surface. Very rarely is the surface correctly illuminated for all the members of the class. Lighting by lamps placed along the edges and screened from view gives good results, although it requires a dead black surface to avoid reflection. Reflection should also be avoided from desks and matter placed thereon. In this respect may be mentioned the irritation caused by reflection from white road surfaces, such as that of a promenade or stretch of shore.

The same annoying glare may be caused by bad disposition of the light units, and the direction of the light should be given very careful attention to ensure that no harmful reflection will take place. If light is received over the left shoulder, glare will be avoided. The paper surface, going to extremes, may even receive attention, and that with a high surface glaze avoided as giving rise to harmful glare.

A point upon which too much stress cannot be laid applies to the steadiness of the light supply. It is well known that the eye is provided with an automatic screen—the iris—which regulates the amount of light entering the eye. This screen is not instantaneous in its action, as is evident on passing from a dark to light room. If the source is varying in intensity, the iris can no longer adjust itself sufficiently quickly to protect the retina, which becomes strained in its effort to maintain clear vision in the varying field. Flickering gas jets are sources of much trouble, and in this connexion it may be remarked that metal filament lamps, owing to the low specific heat of the metal, respond much more readily to momentary or other than permanent changes in pressure than do carbon ones. Their intensity will then vary more on a circuit in which the pressure is not adequately controlled—or, in other words, flickering will be more pronounced.

The illuminants employed should yield a spectrum resembling that of daylight as closely as possible. Hygienic considerations require an avoidance of light containing an excess of ultra-violet rays. The mercury vapour lamp, though useful in many ways, should not be used for school lighting. Perhaps preference should be given to light of a faintly reddish tint, as it makes objects appear warm and cheerful, and for this reason the carbon lamp is preferred by some to the metal lamp yielding a whiter light.

With regard to the natural or daylight illumination, attention should be paid to the fact the whole of the room is sufficiently illuminated. In many cases the windows are so placed that those close to them are in far too strong a light, while others at some little distance experience difficulty in appreciating detail. To receive light over the left shoulder, it would appear that the windows should be placed to the left of the class, or the desks arranged to produce the desired effect. Direct measurement of illumination should be insisted upon, remembering that for most purposes an illumination of two foot-candles is sufficient. It is to be hoped that in time the question will receive the attention it deserves, and the whole of the lighting carefully planned before the construction of any building is commenced.

The Rev. J. H. B. Masterman, speaking on the teaching of history, said that he sometimes had visions of a sacrificial bonfire, in which the historical textbooks of the past went up in flames amid the plaudits of an emancipated world.

REVIEWS.

Outlines of Education in England. By Cyril Jackson. (1s. 6d. net, or cloth 2s. net. Mowbray.)

Americans and foreigners who do us the honour to come to England to study our educational system rapidly fall into despair of ever understanding its complexities, and almost invariably ask, with some wistfulness, whether there is not "some *small* book that gives a broad general conspectus of the whole." Hitherto we have had to send them sorrowfully away, but now, thanks to Mr. Cyril Jackson, we can hand them eighteenpennyworth of condensed knowledge that exactly meets the case. Few indeed are so well qualified by training and experience to undertake such a work. Mr. Jackson was himself a part of a great deal of what he has described. His present contribution is only another of the many self-denying pieces of work he has done for English education. The book is one of a series of handbooks issued by the Christian Social Union, under the editorship of Henry Scott Holland, D.D. But though the author is evidently a loyal Churchman, and though the series is produced by a Church association, the text is creditably free from bias. Even when, in a foot-note, Mr. Jackson asks the following question (that all teachers will not answer in the way he wants), there is no matter of sectarianism involved: "Has a teacher really any right to enter the profession and refuse to give religious lessons?"

The author admits the injustice of Nonconformists in the existence of one-school areas supplied with a Church school, but balances the admission by the charge of injustice in cases where Churchmen have no Church school to which to send their children. The most captious critic reading these pages will find it impossible to impugn Mr. Jackson's fairness. Indeed, apart from the editor's preface, and a preliminary note, there is almost nothing that would enable an unbiased reader to guess the author's Church connexion. The book appeals to the reader on its educational merits. Besides the Introduction and the Conclusion there are seven chapters: "The Organization of Education and Government of the Schools," "The Taught," "The Elementary Schools," "Secondary Schools," "Technical Education," "Training of Teachers," "The Universities." To us who are familiar with the educational system there is, of course, not much in the book that is new, but every well informed reader will be filled with admiration at the skill with which such complicated matters are set forth. It is very seldom that one feels that a stranger could be in any way misled by the presentation here made. Perhaps it would have been well to state explicitly the fact that the distinction between elementary and secondary education in England has been up till now really a social one. Mr. Jackson includes private preparatory schools under the class *Primary*. This is certainly a just classification: but though the work done in such schools is of the same grade as that done in the free schools, the preparatory teachers would strongly object to have their schools labelled "elementary." Then on page 179 (foot-note) the comparison of fees between University College and East London is so made as to lead to a false impression. Surely in the middle paragraph of page 148 "ordinary objects" should read "ordinary subjects." But the wonder is that with such a mass of detailed matter these are the only points that have called for this kind of comment. Not only does Mr. Jackson write from the fullest first-hand knowledge, but he gives evidence of very wide reading on the subject of education in general, and adds greatly to the value of his book by the wise comments he makes on educational theories and the possibilities of their application to the needs of our English schools. In particular he is sympathetic but wisely critical in his estimate of the Montessori scheme, while his foot-note on Mr. Edmond Holmes's "What Is and What Might Be" is the best brief criticism possible—kindly, but final. From the nature of the case the book is mainly expository, but of course it cannot avoid controversial matters. On all points in dispute Mr. Jackson gives his views clearly, but unobtrusively. He is not afraid to give a lead, and teachers, at any rate, will be glad to note that his lead is usually in the direction that their experience inclines them to favour. This is, after all, only what we might expect from a man who has had such excellent opportunities of learning about schools at first hand. Teachers will find it to their advantage to encourage school governors, parents, inspectors, and "others interested" to read this admirable little book.

Wings and the Child. By E. Nesbit. (6s. Hodder & Stoughton.)

When a writer of the distinction of Mrs. Nesbit turns to "the muddled, musty maze we call education" we are entitled to expect something out of the ordinary. We are not disappointed. The professional reader will soon see that this book breaks new ground by developing old theories in a new direction. It is really the philosophy of bricks in education. It is surprising to find no reference to the Froebelian occupations and gifts. One would have thought that the kindergarten bricks formed the classical basis of all educational bricklaying. But it is ill finding fault with an author for not doing her work in the conventional way. Mrs. Nesbit has not given us a systematic treatise. She gives no indication of knowing the principles of education. She has looked into our subject as an outsider, and would no doubt have made serious mistakes had it not been for the insight that her love of children has bestowed upon her. She is much more at home in writing for children than in writing about them, and she is not unaware of the fact, as is shown in her apology on page 109.

Mrs. Nesbit is not enamoured of a scientific pedagogy. She tells us bluntly: "You cannot hope to understand children by common sense, by reason, by logic, nor by any science whatsoever." Imagination and even love are dismissed as equally inefficacious. "There is only one way: to remember what you thought and felt and liked and hated when you yourself were a child." This picturesque exaggeration is probably justified as a reaction against the exclusively objective methods of some scientific observers. In any case it encourages a sort of retrospective analysis that is already in high favour among the psychologists, so Mrs. Nesbit can depend upon support from the very camp she believes she is attacking. It is not to be supposed that she is setting herself up against the properly constituted professional teacher. On the contrary, her book is dedicated with great warmth to the elementary teachers of this country, and in one of her chapters she delivers herself of a panegyric that might turn the heads of any less well balanced body of professional people. Further, her plea for smaller classes in the elementary schools will warm the hearts of the teachers, if it somewhat chills those of the rate-payers. But Mrs. Nesbit's positive contribution to education is twofold. First, there is her discovery of the possibilities of elaborate brickwork in the building of magic cities, coupled with the skill with which she shows that it can be applied in all sorts of schools, even the poorest. But in the second place she has done an even greater service by the charm that she has cast over the whole subject of child study and child co-operation. No one can read her chapter on "Beauty and Knowledge," with its delightful begging of the question involved in the old *laudator temporis acti* point of view, without feeling the better for it. Mrs. Nesbit has discarded science, but she cannot escape from art. The whole book, indeed, is nothing more than an artistic presentation of its author's reaction to modern education, and as such is a valuable "document" for the scientific educationist. That it is also a delightful bit of reading is a piece of good fortune that too seldom falls to the lot of him who has to keep abreast with the literature of education.

School Hygiene. By Fletcher B. Dresslar. (5s. 6d. net. Macmillan.)

This appears as one of the "Brief Course Series in Education"; but there is nothing specially brief about it. A book

of 369 fairly large pages is rather what one would call a thorough treatment for one branch of hygiene. The work is intensely practical, which does not mean that we have only directions and no reasons, but merely that applications are the important things, and only enough theory is introduced to ensure intelligent handling of the various problems. The chapter on Fatigue, for example, is much more meagre than one would expect in view of the extensive literature on the subject, yet it will be found to contain all that matters, while the references given at the end will enable the student to carry his investigations to the sources of knowledge in Macdougall and elsewhere. The principle of the book is to have a large number of chapters (twenty-six in all), each of a moderate size and dealing with a definite subject. Some of these subjects are unusual, for the English reader, at any rate. In "Drinking Cups and Drinking Fountains," for example, we have the American love of "the individual cup" fully justified. Again, we are not accustomed to have a chapter on "The Qualifications and Duties of a School Janitor"; yet when we read it we are compelled to admit that there is something in the contention that, "next to the principal, the janitor can become the most important personage in a city school." The whole ground of school hygiene is covered, and matters are presented in such a clear and attractive way that the reader is apt to forget that he is reading a textbook. The fact that Dr. Dresslar is dealing with conditions in some respects different from ours puts his book at a certain disadvantage in its appeal to English readers; but it is more than probable that this very difference, coupled with the strict attention to the teacher's point of view, will give the book a very special value as an unusual presentation of matters that are ordinarily treated in a somewhat conventional way.

"Home University Series."—*Euripides and his Age.* By Prof. Gilbert Murray. (1s. Williams & Norgate.)

This masterly little volume will make its appeal not only to the classical scholar but also to that wider public to whom Euripides is known chiefly through Prof. Murray's translations. After sifting the varied evidence of often discordant traditions the author gives us a probable, though necessarily meagre, account of the chief facts of the poet's life. But the book contains far more than this. The aim of Prof. Murray is to put the reader into touch with the spirit of the poet, and to help him to understand both the spiritual and intellectual conditions which helped to form his genius, and the artistic conventions in which he worked. We are shown the great ideals which animated Athens as the "Saviour of Hellas" at the close of the Persian war, and the sad falling away from those ideals which left her—towards the end of the war with Sparta—a tyrant city, fighting blindly and often cruelly for an unjust supremacy. Prof. Murray reviews in a few scholarly pages the rise of the Sophists and the intellectual quickening which followed their teaching. It was in this atmosphere of ruthless criticism and fearless inquiry against which no convention or belief, however sacred to the "plain man," could for one moment claim immunity and at a time when the contrast between lofty ideals and small achievements moved many to bitterness, that Euripides wrote. It is in such a spirit that the "Ion" is conceived, which is, as Prof. Murray remarks, "of all the extant plays the most definitely blasphemous against the traditional gods." Small wonder that the poet was unpopular, to quote once more: "It was that he had pierced through to a deeper stratum of thought, in which most of the pursuits and ideals of the men about him stood condemned. Socrates reached the same plane, and they killed Socrates." Prof. Murray gives a short account of the origin of Greek tragedy following the theory that it developed from the Dionysiac Ritual—a theory of which he makes most illuminating use in his treatment of the "Bacchae" and of the *deus ex machina.* The plays are treated in their chronological order, and in the last two chapters on the Art of Euripides those conventions are dealt with which are most foreign to a modern reader—the prologues, the *deus ex machina,* and the chorus. Scattered up and down the book are stimulating parallels and contrasts with modern writers and remarks on the general principles of art. It is only natural that one who, like Prof. Murray, is at the head of the reaction against the nineteenth century view of Euripides as a crude realist should sometimes be guilty of a little "special pleading." Granting that Prof. Murray's defence of the chorus in "Medea," 1273 ff., is adequate, what are we to say of "Hippolytus," 778 ff., with the crowning absurdity of line 785? Again, in his treatment of the "Electra," excellent though it is, we feel that the difficulty of the sham marriage is rather shirked. These, however, are small points, and we should like to close by unreservedly recommending this book to every lover of "sad Electra's poet."

GENERAL NOTICES.

ENGLISH.

Cambridge Poets, 1900–1913. Chosen by Aelfrida Tillyard. (Pp. 215. 5s. net. Cambridge: W. Heffer & Sons.)

Criticism of this volume is disarmed by the modest claim which Sir A. Quiller-Couch puts forward in his introduction. It would seem that the public are asked to accept its contents, not as offering any achievement of permanent value, but as affording evidence of a body of poetic sensibility and technical skill out of which some one worthy of the name of poet may eventually arise. Taken on this level, the selection may be welcomed, though it cannot be said that many of the thirty-eight writers whose names appear are either well known already to the reading public or are likely to become so. Most of the contributions must be definitely classed under the heading of minor poetry, such as demands no very warm encouragement in the interests of literary art. The writing of verses is an agreeable pastime which is well fitted to develop the artistic appreciation of those who practise it; but we do well not to make the approach to Parnassus too easy. Of the writers represented here, perhaps the most promise is shown by Rupert Brooke and James Elroy Flecker, but praise is due also to the work of John Alford, Frances Darwin Cornford, Aleister Crowley, Dermot Freyer, and Victor B. Neuburg.

The British Empire Universities Modern English Illustrated Dictionary. Revised and edited by Edward D. Price and H. Thurston Peck, Ph.D., Litt.D., LL.D. (Pp. 1,210. The Syndicate Publishing Company.)

In this latest edition of the work of reference which rejoices in the above somewhat cumbrous title great pains have been taken to make the information as complete and as up to date as possible. The book, indeed, combines the function of a dictionary with some of the functions of an encyclopædia and a yearbook. The introductory matter, dealing with various aspects of the English language and literature, has been contributed by competent authorities, and should be found both interesting and useful, while the facts and figures supplied in the different sections of the Reference Library, which follows the dictionary proper, form a valuable supplement. The plan of the work seems to have been very well executed. In the definitions, conciseness and accuracy have been successfully sought. There are numerous illustrations, but the principle of selection for more elaborate treatment is not very clear. In the list of "Famous Characters in Prose and Poetry" the choice again seems to be a little haphazard. In Prof. Rippmann's interesting historical account of English spelling, "diagraph" is twice printed for "digraph."

A Bookman's Letters. By W. Robertson Nicoll. (Pp. 427. 4s. 6d. net. Hodder & Stoughton.)

It may be doubted whether Sir W. Robertson Nicoll was well advised in reprinting contributions to the *British Weekly* which had appeared under the well known signature of "Claudius Clear." It is seldom that material intended for publication in a newspaper proves worthy to be enshrined in book form, and the articles that make up this volume, selected though they are from an abundant store, rarely rise above their ephemeral purpose. They consist mostly of gossipy notes about books and authors such as might tickle the palate of uncritical readers, though occasionally some larger question of literary judgment is raised. The author has no original points of view to suggest, but there are some interesting reminiscences of famous writers whom he has met which may pleasantly while away a vacant hour.

HISTORY.

A History of Germany. By H. E. Marshall. With Illustrations in Colour by A. C. Michael. (7s. 6d. net. Henry Frowde and Hodder & Stoughton.)

This is an ample volume in large type within spacious margins, with two maps (of the time of Charlemagne and of Napoleon) and ten

colour plates. Being intended for children, it selects the main facts of the history and utilizes the stories and anecdotes that do so much to fix events in young minds. It is written in simple language and with lucid disposition of the matter, and it is a history that is well worth reading. The author seems to think "the grown-ups" are hopeless, but we expect that many grown-ups will take a keen interest in this volume and derive much interesting and suggestive information from its pages. The book will make a handsome Christmas gift.

"British Battle Books."—*Poitiers.* By Hilaire Belloc. (1s. Hugh Rees.)

The idea of this series is admirable, and it is being admirably carried out. In the present volume Mr. Belloc traces the movements that led up to the Battle of Poitiers, and describes the preliminaries to the action, the ground it was fought on, the constitution of the conflicting bodies, the actual battle, and the results of the battle. He also has a very useful chapter on the aspect the Battles of Crécy and Poitiers would have presented to an onlooker of their time, which involves a description of the general armament of Western European soldiers in the middle of the fourteenth century and the contrast between weapons and methods that told so heavily for the Plantagenets. Mr. Belloc writes with directness and verve and with the incalculable advantage of having personally studied the terrain. The sketch maps are extremely helpful. This volume is simply indispensable to the student of the Poitiers campaign.

English History in Contemporary Poetry. No. II: Lancaster and York (1399 to 1485). By Charles Lethbridge Kingsford, M.A. No. IV: Court and Parliament (1588 to 1688). By Prof. F. J. C. Hearnshaw, M.A., LL.D. (1s. net each. G. Bell, for the Historical Association.)

Both these brochures are very interesting essays, but it is obvious that their narrow limits necessarily reduce them almost to indications of sources and bearings. They will, therefore, be of most use to teachers and to students that have the opportunity and the time to follow out in some well provided library the readings indicated. Quotations are fuller in the first paper; exposition is fuller in the second. Possibly, however, the quotations given may be enough for school purposes—just enough to give a taste and an impulse.

"Oxford County Histories."—*A School History of Lancashire.* By E. G. W. Hewlett, M.A. (1s. 6d. net. Clarendon Press.)

Here is a model history of a county for school use. Lancashire is a large and varied area with a strange outline, little known in the general school histories, yet the scene of multiform activities contributing greatly to the national development. Mr. Hewlett traces its fortunes through the centuries, describing the work of prehistoric man, Romans, Saxons, Normans, &c.; the building of churches and schools, manor houses and cottages; the administration of powerful barons; the civil wars and the peace industries and amusements; the great inventions in weaving and spinning; the canals, the railways, the steamships, and the political and social movements—the transformation of Lancashire into "the greatest industrial centre in the world, and the headquarters of trade between England and America." A very remarkable history, packed full of varied matter, yet fluently and clearly written—a valuable supplement to the general school history, and most interesting and instructive to dwellers in the other counties as well as to the people of Lancashire.

Ancient History. By E. Nixon, late Head Mistress of the Junior School, Ladies' College, Cheltenham, and H. R. Steel. (2s. G. Bell.)

The history of Egypt, Babylonia, and Assyria occupies a good half of the volume, and the history of Greece and Rome (down to Augustus) is reduced to a somewhat thin summary of leading events. The prominence of the Eastern countries shows how recent investigation is beginning to tell upon the school books. Khammurabi gets the most part of a chapter to himself; and the Aegean civilization is well indicated, though we should have expected a stronger attempt to link Crete with Greece. The treatment is fresh and generally accurate. Yet we have scarcely "learnt all that we know about Socrates" from Plato; and the code of Justinian (in whatever sense the writers take the expression) is not a collection of "the decisions of various judges." However, the little volume presents concisely and clearly a great deal of useful information about the great empires of the nearer East that is not elsewhere so readily accessible for school use. There are seven maps and about thirty illustrations, all very serviceable.

Exercises and Problems in English History (1485–1820), chiefly from Orginal Sources. Compiled by W. J. R. Gibbs, B.A., Mus.B. Cantab., Senior Assistant Master, West Suffolk County School and Pupil-Teacher Centre. (2s. 6d. Cambridge University Press.)

The method is to give an extract from an original document and to append a few questions. Altogether there are 150 such problems, each involving three or four points. "In many cases the questions can be answered either in a few sentences or in tabular form," which "reduces the amount of correction without sacrificing the worth of the question." "The chronological order has not been followed, in order to increase the efficacy of the scheme"—how we are unable to understand. Many of the questions are substantial; some of them seem rather intangible or over the heads of schoolboys. But much will depend on the teacher.

CIVICS.

English Political Institutions. An Introductory Study. By J. A. R. Marriott, M.A., Lecturer and Tutor in Modern History and Political Science at Worcester College, Oxford. Second Edition. (4s. 6d. Clarendon Press.)

The second edition of Mr. Marriott's opportune and lucid work is very welcome. The only difference from the first edition, however, is some corrections of details and the addition of a few notes. The Parliament Act is given in an appendix, and for the changes effected in Indian Administration by the Acts of 1909 we are referred to the "Annual Register." After all, these events were important enough to justify the recasting of a page or two. However, the book is substantially excellent. It displays the actual working of the Constitution, sketches the historical development of the various organs of Government (Executive, Legislative, and Judiciary), analyses the machinery and discusses the functions of Local Government, and defines the constitutional relations of the Mother Country and her Colonial dominions and dependencies. The volume cannot be too widely read and studied.

A Primer of English Citizenship. For Use in Schools. By Frederic Swann, B.A., B.Sc. Lond., Scholar of King's College, London, of the Inner Temple, Barrister-at-Law, formerly Head Master of the Grammar School, Ilkley. (1s. 6d. Longmans.)

The object of this primer is to help to make good citizens. Mr. Swann sketches successively the position of the King, the constitution and operation of Parliament, of town councils and of county and other councils, the raising and application of rates and taxes, the working of the various courts, the Army and the Navy, schools of all sorts, the State and the child, masters and men, and the relations of the United Kingdom and the dominions beyond the seas. The treatment is thoroughly simple and clear and well informed, though it is open to exception on Indian affairs and to some extent on alien immigration. On the whole, however, a very careful and valuable work.

The Spirit of Association. Being Some Account of the Gilds, Friendly Societies, Co-operative Movement, and Trade Unions of Great Britain. By M. Fothergill Robinson. (6s. net. John Murray.)

The author examines the principal achievements of the Spirit of Association in this country as manifested through the four forms of spontaneous voluntary associations mentioned in the sub-title, and shows how potent a factor associative effort has been in our national progress. She disclaims original research, but that was not necessary for her purpose: it is enough that she has made good use of the best works on her subject. The book has its value as a history in broad outline, but its most striking quality is a steady and dispassionate criticism, which deserves attention. The facts are very complicated and they have their roots deep in human nature, so that short cuts to remedies are to be regarded with suspicion. "We are thrown back again and again on the basic facts that progress can only be surely attained by the building of individual character, by the fitting of each human being to fulfil worthily life's task, and by the consequent elevation of the whole moral plane, and the ennobling of the impulses by which our home, social, and industrial relations are controlled." Such a conclusion may be unpalatable in some quarters where there is early anticipation of the millennium, but there is solid truth in it. The book has been patiently and thoughtfully written, with ample knowledge, and in an interesting style. It deserves to be widely read and studied.

GEOGRAPHY.

Historical Geography of Scotland. By W. R. Kermack, B.A. (2s. 6d. net. Johnston.)

A valuable book, which explains the geographical aspects of the history of Scottish nationality. The references to original sources are numerous and are carefully arranged, and the whole bears the impress of painstaking preparation.

"The Atlas Geographies."—(1) *British Isles.* (2) *Europe.* By Thomas Franklin, A.C.P., and E. D. Griffiths, B.Sc., F.R.G.S. (6d. net each. Johnston.)

These are the first two parts of a new series of regional books. Each is a self-contained atlas and textbook, and has numerous exercises. Letterpress and maps are both very satisfactory.

SCIENCE.

Weeds: Simple Lessons for Children. By R. Lloyd Praeger. (1s. 6d. net. Cambridge University Press.)

This is the fourth volume of the "Cambridge Nature Study Series," which has already established an excellent reputation, not only for simplicity and clearness, but for the engaging and accessible nature of the topics with which it deals. Soil, Trees, Human Nature (in "The

Gateways of Knowledge"), and now Weeds, are materials obtainable by every one, even in varying degree by the city dweller, and the different writers manage to make them all so interesting that each appears more attractive than the other, as a basis for school lessons. This latest volume has the excellent illustrations and highly practical suggestions for work which have distinguished its predecessors, and although it is likely that no teacher of any originality in botany ever could confine himself to, or follow the order of, a book, this one will provide every one who uses it with very useful exercises to set their classes, and very interesting text for them to read.

"Home University Library."—*Plant Life.* By Prof. J. B. Farmer, F.R.S. (1s. net. Williams & Norgate.)

Every one who has come under the brilliant influence of Prof. Farmer's teaching must be aware of the interesting way in which he treats the subject of physiological anatomy. This book shows his wide grasp of plant structure, and illustrates the intimacy of his knowledge of details; but it is written in such a way that any reader who is capable of understanding scholarly language can grasp its contents without previous possession of much technical knowledge. There is a deep interest in the way in which all the physiological functions are shown to subserve the interests of the green leaf, and the author's characteristic rejection of the misuse of the term "adaptation" as an explanation of at present unexplainable effects should teach a wholesome lesson to many who prattle amiably of Nature's ways. The book is to be especially commended to teachers of Nature study, who will find that it gives them a point of view from which their subject may be viewed as a whole and unified. If we miss anything which we might have expected in the book it is some discussion of the wonderful devices by which some shade plants utilize very faint light; but the book, as a whole, is as suggestive as it is pleasant to read.

MUSIC.

Musical Number Games. By Edith S. Sayer. (55 pp. 1s. 8d. net. Charles & Dible.)

Teachers of the youngest children will welcome this useful book. It contains twenty-five games designed for teaching number. Each is set to a short and easily learnt tune, which in some cases is adapted from other, and older, games. Children delight in tunes, especially in conjunction with games, and here we have a good combination of tune, words, and game which will cause a child to absorb unconsciously elementary ideas of number.

Songs of Love and Duty. Fourth Edition. Edited by G. Spiller and A. Knight, A.R.C.O. (75 pp. 6d. net. Watts.)

This book contains seventy poems calculated to cultivate a high moral tone in children of all denominations without wounding the religious susceptibilities of parents. The words are set to appropriate music of a rhythmical and tuneful character, in some cases well known tunes being requisitioned.

Living Music. A Popular Introduction to the Methods of Modern Music. By Herbert Antcliffe. (2s. 6d. net. Joseph Williams.)

This book is divided into two parts. The first part, historical and personal, deals with the influences which have led up to the music of the present day; the second part, technical and æsthetic, deals with progressive ideas of opera and music drama, modern choralism, modern tonality and harmony, and classical and romantic, of to-day. The treatment is interesting and vivid. Much ground is covered in the fifteen chapters. We commend the book alike to professional and amateur students. Appended are a glossary of musical terms and a bibliography.

The Country Dance Book. Part III. Containing Thirty-five Country Dances from "The English Dancing Master" (1650–1670). Described by Cecil J. Sharp and George Butterworth. (Novello.)

This book is issued in connexion with "Country Dance Tunes," Sets V and VI. Price 1s. 6d. each. We welcome the continuation of this admirable work.

Songs for the Schoolroom. Composed by T. W. Stephenson, B.A. (1s. net. Frowde and Hodder & Stoughton.)

This volume comprises twenty songs, pleasing and tuneful, well adapted for young pupils. We would point out that in Nos. 15 and 17 the time-signature needs revision.

PUBLICATIONS RECEIVED.

EDUCATION.

The Purpose of Education. By St. George Lane Fox Pitt. Cambridge University Press, 2s. 6d. net.

English Education and Dr. Montessori. By Cecil Grant. Wells Gardner, 2s. 6d. net.

Montessori Schools: as Seen in 1913. By Jessie White, D.Sc. Milford, 1s. net.

CLASSICS.

Bell's Simplified Latin Classics.—(1) Sallust's Catiline; (2) The Agricola of Tacitus. Edited by S. E. Winbolt. 1s. 6d. each.

Limen: a First Latin Book. Fourth Edition. By W. C. F. Walters and R. S. Conway. Murray, 3s.

FRENCH.

Marie Claire à Villevielle. Par Marguérite Audoux. Clarendon Press, 1s. 6d.

Exercises on "Le Blocus," with Grammar and *Questionnaire.* By R. J. C. Hayter. Cambridge University Press, 10d.

Collection Gallia.—(1) La Femme de Demain. Par Etienne Lamy. (2) Odeurs de Paris. Par Louis Veuillot. Dent, 1s. net. each.

Lectures Illustrées. Par E. Magee and M. Anceau. A. & C. Black, 1s. 6d.

Quatre Contes Choisis. Par A. Daudet. Edited by H. N. Adair. Hachette, 1s.

Le Barbier de Séville. Par Beaumarchais. Edited by F. H. Osgood. Ginn, 2s.

Les Haricots Merveilleux. Hachette, 15 c.

Cendrillon. Hachette, 15 c.

La Belle au Bois Dormant. Hachette, 15 c.

Sindbad le Marin. Hachette, 15 c.

Histoire d'un Chien, d'une Poupée, et d'une Petite Fille. Hachette, 1 f.

Contes Merveilleux. Adaptés par M. P. Crémieux. Hachette, 10 f.

Le Journal d'une Minet Blanc. By J. Freneuse. Hachette, 3 fr.

Bibliothèque Hachette.—(1) Molière; (2) Corneille; (3) Boileau. 1 fr. net.

Hachette's Reading Books.—(1) La Dette de Jeu, 2s.; (2) Le Blocus, 1s. 6d.; (3) L'Evasion du Duc de Beaufort, 4d.; (4) Easy French Poems, 6d.; (5) Le Barbier de Séville, 6d.; (6) Contes Faciles, 1s.; (7) Episodes de Guerre, 1s.; (8) Cinq Contes Choisis, 1s.; (9) La Classe en Français, 2s.

Military Expressions in English, French, and German. Hachette, 1s. 6d.

How to Learn 6,000 French Words in One Day. Hachette, 2s. 6d.

Chardenal's Second French Course. New Edition. Hachette, 2s.

Harrap's Shorter French Texts.—La Révolution. 8d.

GERMAN.

Grammar of the German Language. By G. H. Clarke and C. J. Murray. Cambridge University Press, 5s.

ENGLISH.

Manual of English for Foreign Students. By Marshall and Schaap. Hachette, 3s. 6d.

American Literature. By W. J. Long. Ginn, 5s. net.

Selections from William Hazlitt. Edited by W. D. Howe. Ginn, 5s.

The Tudor Shakspere.—(1) Antony and Cleopatra. Edited by G. Benedict. (2) The Tempest. Edited by H. E. Greene. Macmillan, 1s. each.

Scott's Guy Mannering. Edited by R. F. Winch. Macmillan, 2s. 6d.

Folk Stories.—(3) The Orange Maiden; (4) The White Dove; (5) The Magic Plant; (6) The Mountain Giant. McDougall, paper, 2d. each; cloth, 3d. each.

The Student's Elocution Book. By L. Bagley and G. Goodes. Simpkin Marshall, 1s. 6d. net.

The Children's Classics.—The Dove in the Eagle's Nest. By Charlotte Yonge. Macmillan, 5d.

Book Ways: Introduction to the Study of English Literature. By E. Kimpton. Ralph, Holland, 2s.

The Tree of Knowledge. By Sybil Smith. Milford, 3s. 6d. net.

Anthology of English Verse. Second Edition. By A. J. Wyatt and S. E. Goggin. Clive, 2s. 6d.

English Lessons on the Gouin Method. By F. Thémoin and M. F. Yates. Hachette, 1s. 6d.

A. L. Spelling Books.—(1) Lower Classes; (2) Intermediate Classes; (3) Upper Classes. By J. B. Marshall. E. J. Arnold, paper, 2d. each; cloth, 3d.

Chisholm Readers. Book III, 1s. 3d.; Book IV, 1s. 4d. Jack.

Story-book Readers.—(1) Untidy Molly, and other Stories; (2) The Little Gentleman in Velvet. E. J. Arnold, paper, 1½d. each; cloth, 2½d.

A Handbook of Précis Writing. By E. D. Evans. Cambridge University Press, 2s.

A. L. Old Time Tales Illustrations.—The Three Bears. By W. S. Staccy. E. J. Arnold, set of three, 6s. 6d. net; each, 2s. 6d. net.

Told in Dicky-bird Land. By Gladys Davidson. Nutt, 2s. 6d. net.

HISTORY.

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(1) *To write on one side only of the paper.*
(2) *To avoid putting more than one piece of work on a single sheet of paper.*
(3) *To sign each separate piece of work.*

14539. (Professor LANGHORNE ORCHARD, M.A., B.Sc.)—If r and n be any positive integers, show that the sum of the series

$$1^r+2^r+3^r+4^r+\ldots+n^r$$

is a fraction whereof the numerator is exactly divisible by n and the denominator is some integer independent of n.

Solution by F. J. TURTON.

Denote $1^r+2^r+\ldots+n^r$ by S_r. Now

$$n^{r+1}-(n-1)^{r+1} = {}_{r+1}C_1 n^r - {}_{r+1}C_2 n^{r-1}+\ldots+(-1)^{r-1}\,{}_{r+1}C_r\, n+(-1)^r,$$

then

$$(n-1)^{r+1}-(n-2)^{r+1} = {}_{r+1}C_1(n-1)^r - {}_{r+1}C_2(n-1)^{r-1}+\ldots$$
$$+(-1)^{r-1}\,{}_{r+1}C_r(n-1)+(-1)^r,$$

and so on,

$$2^{r+1}-1^{r+1} = {}_{r+1}C_1 2^r - {}_{r+1}C_2 2^{r-1}+\ldots+(-1)^{r-1}\,{}_{r+1}C_r\, 2+(-1)^r,$$
$$1^{r+1}-0^{r+1} = {}_{r+1}C_1 1^r - {}_{r+1}C_2 2^{r+1}+\ldots+(-1)^{r-1}\,{}_{r+1}C_r\, 1+(-1)^r.$$

Adding up, and remembering there are "n" rows, we have

$$n^{r+1} = S_r\,{}_{r+1}C_1 - {}_{r+1}C_2\,S_{r-1}+{}_{r+1}C_3\,S_{r-2}\ldots(-1)^{r-1}\,{}_{r+1}C_r\,S_1+n(-1).$$

Then, if $S_1S_2\ldots S_{r-1}$ are divisible by n, S_r is divisible by n. But $S_1 \equiv \frac{1}{2}[n(n+1)]$, therefore S_r is divisible by n, *i.e.*, is of the form $n.f(n)$.

The denominator of S_r is governed by the coefficients

$${}_{r+1}C_r\ldots{}_{r+1}C_{r-3}\ldots{}_{r+1}C_1.$$

For S_1 will have a denominator ${}_2C_1$, S_2 will have a denominator ${}_2C_1\times{}_3C_1$; and S_r a denominator

$${}_2C_1\times{}_3C_1\times{}_4C_1\times\ldots{}_{r+1}C_1,$$

except in so far as cancellations are possible. Each of ${}_sC_1$ are independent of "n" depending only on r, and therefore the denominator is independent of n.

17614. (Professor R. W. GENESE, M.A.) — If O, the circumcentre of a triangle ABC, be taken as origin, and u, v, w denote the vectors OA, OB, OC, the vector of N (the nine-point centre) is known to be $\frac{1}{2}(u+v+w)$; prove that the vector of the in-centre I is $(au+bv+cw)/(a+b+c)$, and hence that the modulus of NI is $\frac{1}{2}R-r$.

Solution by Professor K. J. SANJÁNA, M.A.

If M is the mid-point of BC,

$$(OB)+(OC) = 2(OM);$$

therefore

$$(OA)+(OB)+(OC)$$
$$= (OA)+2(OM) = 3(OG),$$

where $AG = 2GM$.

Thus the vector of G is

$$\tfrac{1}{3}(u+v+w).$$

But $(ON) = \frac{3}{2}(OG)$;

therefore $(ON) = \frac{1}{2}(u+v+w)$.

If the bisector of $\angle A$ meets BC in M′, $BM' : M'C = c : b$; hence

$$b(OB)+c(OC) = (b+c)(OM');$$

therefore $a(OA)+b(OB)+c(OC) = a(OA)+(b+c)(OM')$

$$= (a+b+c)(OI),$$

where $AI : IM' = b+c : a$.

Thus the vector of I is $(au+bv+cw)/(a+b+c)$. Now

$$(OI)+(IN) = (ON);$$

therefore $(IN) = (ON)-(OI)$

$$= \frac{1}{2(a+b+c)}[u(b+c-a)+v(c+a-b)+w(a+b-c)]$$
$$= 1/2s[u(s-a)+v(s-b)+w(s-c)].$$

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If we take the axis along OA,

$$u \equiv \mathrm{R}, \quad v \equiv \mathrm{R}(\cos 2\mathrm{C} + \iota \sin 2\mathrm{C}), \quad w \equiv \mathrm{R}(\cos 2\mathrm{B} - \iota \sin 2\mathrm{B});$$

so that

$$\mathrm{IN}) = \mathrm{R}/2s \left\{ s-a+(s-b)\cos 2\mathrm{C} + (s-c)\cos 2\mathrm{B} + \iota\left[(s-b)\sin 2\mathrm{C} - (s-c)\sin 2\mathrm{B}\right]\right\}.$$

Hence (modulus NI)^2

$$= \mathrm{R}^2/4s^2\left[\Sigma(s-a)^2 + 2\Sigma(s-b)(s-c)\cos 2\mathrm{A}\right]$$
$$= \mathrm{R}^2/4s^2\left\{\left[\Sigma(s-a)\right]^2 - 4\Sigma(s-b)(s-c)\sin^2\mathrm{A}\right\}$$
$$= \tfrac{1}{4}\mathrm{R}^2 - \mathrm{R}^2/s^2\,\Sigma bc\sin^2\tfrac{1}{2}\mathrm{A}\sin^2\mathrm{A}$$
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$$= \tfrac{1}{4}\mathrm{R}^2 - \mathrm{R}^2\Delta/s^2.4s\Delta/abc\,(1-r/\mathrm{R})$$
$$= \tfrac{1}{4}\mathrm{R}^2 - \mathrm{R}^2\Delta/s.1/\mathrm{R}\,(1-r/\mathrm{R}) = \tfrac{1}{4}\mathrm{R}^2 - \mathrm{R}r + r^2.$$

Thus, finally, (modulus NI) $= +(\tfrac{1}{2}\mathrm{R} - r)$.

Note by the PROPOSER.

I is the centroid of masses a, b, c at A, B, C; hence its vector to *any* origin is $\dfrac{au+bv+cw}{a+b+c}$. Since vectors add like forces (or, by scalar multiplication) a formula is available for the square of the modulus of $\lambda u + \mu v + \nu w$, viz., $\Sigma\lambda^2\bar{w}^2 + 2\Sigma\mu\nu\bar{v}\bar{w}\cos\hat{vw}$.

The work of simplification is shortened if $\Sigma\sin\mathrm{A}$ be replaced by $(a+b+c)/2\mathrm{R}$.

17266. (A. M. NESBITT, M.A.)—Discuss the curve $y = x^y$, especially for negative values of y.

Solution by C. E. WRIGHT *and the* PROPOSER.

The curve $y = x^y$ (or more conveniently for tracing $x = y^{1/y}$) is easily obtained for positive values of y. There is a maximum abscissa e when $y = e$, and a point of inflexion when

$$y = e^{\frac{3}{2}} = 4{\cdot}48,\ x = (e^{\frac{3}{2}})^{e^{-\frac{3}{2}}} = 1{\cdot}4 \text{ (roughly)}.$$

Also an asymptote $x = 1$. Considering values of y numerically equal, but of opposite sign,

$$x = y^{1/y}, \quad x_1 = (-y)^{-1/y};$$

therefore $\qquad xx_1 = (-1)^{1/y}$.

If $1/y$ is an odd integer, or any fraction in its lowest terms with an odd denominator, it follows that x_1 is real: otherwise imaginary. Hence negative values of y give a *branche pointillée*, the value of dx/dy being imaginary for all such values. But it would seem that a certain amount of continuity can be given to this branch; for any number whatever, whether irrational or in the form of a fraction with an irreducible, even, denominator can be expressed as the limit of a convergent sequence of fractions with odd denominators (*e.g.*, n/m can be defined as $[y_r]$, where

$$y_r = rn/(rm+1),$$

r being an integer). Hence, if n/m is a value of y for which $y^{1/y}$ is imaginary, we may give a real value to it by taking $\underset{r=\infty}{\mathrm{Lt}}\,(y_r)^{1/y_r}$ as its *definition*, even though this limit is not attained. The function $x \equiv y^{1/y}$ may now be considered as defined for all real values of y, positive or negative. The branch of the curve below the x-axis then becomes continuous.

A wider view of the functional relation between x and y may be taken: if y is restricted to real values, put

$$y = \rho e^{ik\pi}, \quad x = \rho^{1/\rho}\left\{\cos k\pi/\rho + i\sin k\pi/\rho\right\}.$$

The case requiring discussion is when k is an *odd* integer. Put $\rho = n/m$: then $\sin k\pi/\rho$ vanishes only if

$$mk = 2nr \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1),$$

where r is any integer.

Choose n'/m' such that $|n/m - n'/m'| < \mathrm{E}$ (any small quantity); then for $y = n'/m'$, x is real if

$$m'k = 2n'r' \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2).$$

In (1) and (2) r and r' are so chosen that the values of k are integral: it follows that though the values of y and of x are *geometrically* consecutive, the values of x will belong to different branches of the function $y^{1/y}$. Hence there is on this view no functional continuity between consecutive values of x, and the branch of conjugate points reappears.

A tracing of the graph for real values of x and y is appended.

17612. (Lt.-Col. H. W. L. HIME.)—If the sides of an obtuse-angled triangle are so related that $8\Sigma a^4 = 11\Sigma a^2b^2$; then the two real common tangents of Brocard's ellipse and circle concur on the circum-circle.

Solution by the PROPOSER.

Since the Brocard circle passes through the foci of the Brocard ellipse, their common tangents touch the circle in points lying on the tangent to the ellipse at an extremity of its conjugate axis (Taylor's *Ancient and Modern Geometry*, p. 130, Ex. 335). The pole of this tangent with respect to the circle, or the point of intersection of the tangents, has for its anharmonic coordinates, with the symmedian point as origin,

$$\left\{2(\sqrt{\mathrm{M}}-\sigma)+3a^2,\quad 2(\sqrt{\mathrm{M}}-\sigma)+3b^2,\quad 2(\sqrt{\mathrm{M}}-\sigma)+3c^2\right\},$$

where $\qquad \mathrm{M} = \Sigma a^4 - \Sigma a^2b^2$ and $\sigma = \Sigma a^2$.

Substituting these coordinates in the equation of the circum-circle, which is (with the symmedian point for origin)

$$yz + zx + xy = 0,$$

we get for the condition that the two real tangents concur on the circum-circle $\qquad 8\Sigma a^4 = 11\Sigma a^2b^2$.

17608. (A. M. NESBITT, M.A.)—The formula for the volume of a tank or dam having a rectangular top and bottom, and sloping sides, is "add top area, bottom area and four times mean area, and multiply by one-sixth of the depth." In space of four dimensions prove that the formula is the same, "area" meaning what in ordinary parlance would be a solid; and "top and bottom" being to right or to left along one of the four "rectangular" axes.

Solution by D. M. Y. SOMMERVILLE, M.A., D.Sc.

Since the sloping sides are flat, the corresponding edges of the top and bottom boundaries must be parallel. Let a_1, a_2, a_3 be the edges of the bottom P; b_1, b_2, b_3 those of the top Q. Then the section by a 3-flat parallel to the bottom and at a height zh, h being the whole height, is a rectangular solid M^2 with edges

$$a_1(1-z) + b_1z, \ \ldots.$$

Hence the content V is given by integrating from 0 to 1,

$$d\mathrm{V} = \left\{a_1 + (b_1-a_1)z\right\}\left\{a_2 + (b_2-a_2)z\right\}\left\{a_3 + (b_3-a_3)z\right\}hdz.$$

Let $\Sigma a_1a_2b_3 = \Sigma_1$, $\Sigma a_1b_2b_3 = \Sigma_2$, $a_1a_2a_3 = \mathrm{P}$, and $b_1b_2b_3 = \mathrm{Q}$, then

$$1/h\,d\mathrm{V}/dz = \mathrm{P} + z(\Sigma_1 - 3\mathrm{P}) + z^2(\Sigma_2 - 2\Sigma_1 + 3\mathrm{P}) + z^3(\mathrm{Q} - \Sigma_2 + \Sigma_1 - \mathrm{P});$$

therefore $\mathrm{V}/h = \mathrm{P} + \frac{1}{2}(\Sigma_1 - 3\mathrm{P}) + \frac{1}{3}(\Sigma_2 - 2\Sigma_1 + 3\mathrm{P}) + \frac{1}{4}(\mathrm{Q} - \Sigma_2 + \Sigma_1 - \mathrm{P})$

$$= \tfrac{1}{4}(\mathrm{P}+\mathrm{Q}) + \tfrac{1}{12}(\Sigma_1 + \Sigma_2).$$

Now if M is the mid-section,

$$2^3\mathrm{M} = (a_1+b_1)(a_2+b_2)(a_3+b_3) = (\mathrm{P}+\mathrm{Q}) + (\Sigma_1+\Sigma_2).$$

Hence $\quad \mathrm{V}/h = \frac{1}{4}(\mathrm{P}+\mathrm{Q}) + \frac{2}{3}\mathrm{M} - \frac{1}{12}(\mathrm{P}+\mathrm{Q}) = \frac{1}{6}(\mathrm{P}+\mathrm{Q}+4\mathrm{M})$.

This result admits of extension to space of $n+1$ dimensions S_{n+1}. We shall use the notation

$$\Sigma_r = \Sigma b_1b_2\ldots b_ra_{r+1}\ldots a_n, \quad \Sigma_r + \Sigma_{n-r} = \mathrm{T}_r, \quad \mathrm{M}_p + \mathrm{M}_{1-p} = \mathrm{N}_p$$

(if n is even, the single term $\Sigma_{\frac{1}{2}n} = \mathrm{T}_{\frac{1}{2}n}$).

Then it can be proved by the above method that

$$\mathrm{V}_{n+1} = \frac{h}{n+1}\left(\mathrm{T}_0 + \frac{\mathrm{T}_1}{n} + \frac{\mathrm{T}_2}{{}_n\mathrm{C}_2} + \frac{\mathrm{T}_3}{{}_n\mathrm{C}_3} + \ldots\right),$$

the last term being $\quad \mathrm{T}_{\frac{1}{2}(n-1)}/{}_n\mathrm{C}_{\frac{1}{2}(n-1)}$ or $\mathrm{T}_{\frac{1}{2}n}/{}_n\mathrm{C}_{\frac{1}{2}n}$,

according as n is odd or even.

Also the numbers N_p can be expressed linearly in terms of the T's.

In space of $2n$ or $2n-1$ dimensions the volume is then expressed as a linear function of n T's, and hence as a linear function of n N's, *i.e.*, it is expressed linearly in terms of n sums of pairs of sections equidistant from top and bottom These sections may be taken at any intervals, however irregular, so long as there are n pairs.

Now we can prove the theorem: "Any formula of this kind which is true in space of n dimensions is true for the corresponding figure in a space of any lower dimensions." The formula for S_n will still be true if a pair of opposite boundaries are parallel. In this case

every section of the figure parallel to these boundaries is a figure of the same kind in space S_{n-1}. Let a be the distance between the parallel boundaries. Then $V_n = aV_{n-1}$ and any section

$$M_p^n = aM_p^{n-1};$$

hence the factor a cancels, and we get exactly the same formula expressing V_{n-1} in terms of its corresponding sections.

As the number of dimensions increases the formulæ become more complex. In S_3 and S_4 we have

$$V = h/6\,(P+Q+4M_{\frac{1}{2}}) = h/8\,[P+Q+3\,(M_{\frac{1}{3}}+M_{\frac{2}{3}})]$$

In S_5 and S_6 we have

$$V = h/90\,[7\,(P+Q)+32\,(M_{\frac{1}{4}}+M_{\frac{3}{4}})+12M_{\frac{1}{2}}],$$

and also $V = h/288\,[19\,(P+Q)+75\,(M_{\frac{1}{5}}+M_{\frac{4}{5}})+50\,(M_{\frac{2}{5}}+M_{\frac{3}{5}})]$.

These formulæ, and all higher ones, are all true in ordinary space and for a plane trapezium.

The Proposer solves thus :—

Take for bounding "planes"

$$\pm y = a+lx, \quad \pm z = b+mx, \quad \pm w = c+nx, \quad \pm x = d.$$

The "volume" of the "solid" is

$$8\int_{-d}^{+d}(a+lx)(b+mx)(c+nx)\,dx$$

or $\qquad 16\,(abcd+d^3\,\Sigma amn/3).$

Now "top area" $= 8\,(a+ld)(b+md)(c+nd)$,

"bottom area" $= 8\,(a-ld)(b-md)(c-nd)$,

$4\times$ mean "area" $= 32abc$,

and their sum $= 8\,(6abc+2d^2\Sigma amn)$.

Multiplying by $2d/6$, we get

$$16abcd+16d^3\,\Sigma amn/3.$$

It may be remarked that while this same formula holds in space of two, three, or four dimensions, it fails for space of higher dimensions.

17581. (N. W. McLachlan, B.Sc. Eng. (Lond.), A.M.I.E.E.)—One vertical section of an oil well for a dynamo bearing is a trapezium with parallel sides 12″ and 10″. Another vertical section, at right angles to the former, is a rectangle 8″ long. The depth of each section is 6″. Find the level of the oil when the well is $\frac{5}{8}$ full.

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(I) Let ABCD be section of tank.

Produce AD and BC to O.

Then $\qquad OZ = 30''$.

Volume of tank

$$= \tfrac{1}{2}(12+10)\times 6\times 8$$
$$= 11\times 6\times 8 \text{ cubic inches};$$

therefore $\frac{5}{8}$ of this $= 330$ cubic inches.

Let x be required depth of liquid.

Then

$$330 = \tfrac{1}{2}\,[\tfrac{1}{3}(30+x)+10]\,x\times 8;$$

giving $\qquad x = 3{\cdot}87$ inches.

(II) Any horizontal section is an ellipse of semi-minor axis 4″. If x be the height of the section above the bottom, the semi-major axis is $(5+\frac{1}{6}x)''$.

The area is therefore $4\pi\,(5+\frac{1}{6}x)$; therefore the volume is

$$\int_0^6 4\pi\,(5+\tfrac{1}{6}x)\,dx = \pi\,(120+\tfrac{36}{3}).$$

If x be the level when the well is $\frac{5}{8}$ full, we get

$$\tfrac{5}{8}\pi\,(120+12) = 4\pi\,(5x+\tfrac{1}{12}x^2),$$

i.e., $\quad \frac{5}{8}\times 132 = 20x+\frac{1}{3}x^2, \qquad$ *i.e.*, $\quad 2x^2+120x-495 = 0,$

i.e., $\qquad x = \frac{1}{2}\,(-60\pm 67{\cdot}75)$ approximately

$$= 3{\cdot}87 \text{ inches nearly.}$$

16994. (Professor Sanjána, M.A.)—Two opposite sides, PP′, QQ′ of a quadrangle inscribed in a central conic, cross the axis at equal distances from the centre; prove that a similar property holds with regard to the sides PQ′, P′Q, and with regard to PQ, P′Q′.

17071. (W. F. Beard, M.A.)—ABC is a triangle; the circle through A touching BC at its middle point meets AB, AC at Y, Z; YZ and the tangent at A to this circle meet BC at T, T′. Prove

$$BT' = CT.$$

Solution by C. E. Youngman, M.A.

Let any transversal cut the three pairs of sides of the quadrangle at LL′, MM′, NN′; these points, with RR′ where it cuts the conic, are four pairs in involution.

In Question 16994 two pairs, LL′ and RR′, have a common mid-point, the centre of the conic; therefore that is also the mid-point of the other pairs.

To get Question 17071, put P and P′ at A, R and R′ at the middle of BC, and QQ′ at Y and Z; and take BC as the transversal. Then again two pairs of the involution, RR′ and BC, have a common mid-point, which must therefore bisect TT′ also.

Note.—Mr. C. E. Wright remarks that the Solution of Question 16994 and an extension of the same is given in the new edition of C. Smith's *Conics*, p. 252.

Mr. W. F. Beard, M.A., solves Question 17071 thus :—

Let D be the mid-point of BC. Draw the chord AL parallel to BC. Join LD, LT. Because BD = BC; therefore

$$(BC, D\infty) = -1;$$

therefore $\quad A\,(BC, D\infty) = -1;$

therefore $\quad A\,(YZ, DL) = -1:$

therefore YZ, DL are conjugate chords; therefore the pole of DL lies on YZ, but it also lies on BC; therefore T′ is the pole of DL; and therefore TL is a tangent, but AL is parallel to TT′ and AT′ is a tangent; therefore, by symmetry, DT = DT′; and therefore CT = BT′.

17622. (J. J. Barniville, B.A.)—Express x^8-x^4+1 in the forms $A^2\pm 6B^2$, and deduce the factors of $x^{12}+6^6$.

Solutions (I) *by* Lt.-Col. Allan Cunningham, R.E.; (II) *by* R. F. Davis, M.A.

(I) $\quad x^8-x^4+1 = (x^{12}+1)\div(x^4+1)$

$$= (x^4+3x^2+1)^2-6x^2\,(x^2+1)^2$$
$$= (x^4-3x^2+1)^2+6x^2\,(x^2-1)^2;$$

$$x^{12}+6^6 = (x^4+6^2).(x^{12}+6^6)/(x^4+6^2)$$
$$= (x^4+6^2).\{(x^4+3.6x^2+6^2)^2-(6x^2)^2.(x^2+6)^2\}$$
$$= (x^4+6^2).\{P^2-Q^2\} = (x^4+6^2)(P-Q)(P+Q),$$

where $\qquad P = (x^4+3.6x^2+6^2), \quad Q = 6x^2\,(x^2+6).$

The above all depend on the Aurifeuillian partition

$$(x^6+y^6)\div(x^2+y^2) = (x^2+3xy+y^2)^2-6xy\,(x+y)^2.$$

(II) Since $\quad x^8-x^4+1 = x^4\,(x^4+1/x^4-1) = t^4-4t^2+1,$

if $t = x+1/x$; and t^4-4t^2+1 may be written

$$(t^2+1)^2-6t^2 \quad \text{or} \quad (t^2-5)^2+6\,(t^2-4);$$

the required forms are

$$(x^4+3x^2+1)^2-6x^2\,(x^2+1)^2 \quad \text{and} \quad (x^4-3x^2+1)^2+6x^2(x^2-1)^2.$$

Then put $x = y/\sqrt{6}$, and the factors of $y^{12}+6^6$ may be deduced.

17628. (R. Tata, M.A.)—The locus of points from which three normals can be drawn to a parabola, such that one of them is equally inclined to the other two is a pair of lines a right angles to each other.

Solution by Professor K. J. Sanjána, M.A., *and* W. N. Bailey.

The parabola being $y^2 = 4ax$, the equation of the normal of gradient m is $y = mx-2am-am^3$. If this goes through the point $(\xi\eta)$ whose locus is sought, we have

$$am^3+m\,(2a-\xi)+\eta = 0.$$

Hence $\quad m_1+m_2+m_3 = 0, \quad m_1m_2+m_2m_3+m_3m_1 = 2-\xi/a,$

$$m_1m_2m_3 = -\eta/a.$$

If the normal of gradient m_2 is equally inclined to those of gradients m_1, m_3, we must have the angle between m_2, m_1 supplementary to that between m_2, m_3; this gives

$$(m_2-m_1)/(1+m_1m_2) = -(m_2-m_3)/(1+m_2m_3),$$

or $\qquad 2m_2-m_1-m_3-2m_1m_2m_3+m_2^2\,(m_1+m_3) = 0.$

Hence $\qquad 3m_2+2\eta/a-m_2^3 = 0,$

i.e., $$m_2^3 - 3m_2 - 2\eta/a = 0.$$
But $$m_2^3 + (2 - \xi/a)\, m_2 + \eta/a = 0,$$
from the equation of the normal; therefore
$$m_2\,(5 - \xi/a) + 3\eta/a = 0, \quad \text{or} \quad m_2 = 3\eta/(\xi - 5a).$$
Substituting in either equation for m_2, we get (after suppressing the factor η) $$27a\eta^2 = (\xi - 5a)^2\,(2\xi - a).$$
Thus the locus is a quartic which breaks up into the axis of the curve $y = 0$, and the looped cubic
$$27ay^2 = (x - 5a)^2\,(2x - a).$$
For the problem to be possible those points of the cubic must be taken which lie beyond the evolute of the parabola away from the vertex; this requires the abscissæ of the points to be $\geqslant \frac{7}{2}a$. It seems that there is some defect in the wording of the problem.

QUESTIONS FOR SOLUTION.

17670. (N. Sankara Aiyar, M.A.)—Find the value of
$$\int_0^\infty \frac{\cos x}{(1+x^2)^3}\,dx \quad \text{and} \quad \int_0^\infty \frac{\sin 2x}{x\,(1+x^2)^3}\,dx.$$

17671. (Professor R. Srinivasan, M.A.)—If $\sin\theta = n \sin(\theta + \alpha)$, show that
$$\frac{\sin(\theta+\alpha)}{\cos\theta - n\cos(\theta+\alpha)} = \sum_{r=0}^{\infty} n^r \sin(r+1)\,\alpha.$$

17672. (R. F. Davis, M.A.)—Prove that in any triangle
$$\begin{vmatrix} a & b & c \\ a^{-1} & b^{-1} & c^{-1} \\ a^{-2}\cos A & b^{-2}\cos B & c^{-2}\cos C \end{vmatrix} = 0.$$

17673. (Lt.-Col. Allan Cunningham, R.E.)—Solve algebraically in integers, and give the lowest numerical example,
$$(x^6 + y^6) \div (x^2 + y^2) + (z^6 + w^6) \div (z^2 + w^2) = X^4 + Y^4.$$

17674. (A. M. Nesbitt, M.A.)—The number $N = 4a \pm 1$ is prime or composite according as $\{[\frac{1}{2}(N-1)]!\}^2 \pm 1$ is or is not divisible by N. [*E.g.*, $N = 17$ is a factor of $(8!)^2 + 1$; $N = 19$ is a factor of $(9!)^2 - 1$, and actually of $9! + 1$.]

17675. (C. M. Ross, B.A.)—A sphere of constant radius r passes through the origin, and cuts Ox, Oy, Oz in A, B, C. Find the locus of the foot of the perpendicular from the origin on the plane ABC.

17676. (C. E. Youngman, M.A.)—ABC being given, let A′BC, B′CA, C′AB be varying isosceles triangles together equal to ABC, such that AA′, BB′, CC′ meet at P. Then the locus of P is a nodal cubic, and the envelope of the axis of perspective of ABC and A′B′C′ is a parabola (Kiepert's). The asymptotes of the cubic meet at a point, and are parallel to the three pedal lines which meet at the nine-point centre.

17677. (W. E. H. Berwick.)—Prove that the deficiency of the curve
$$9x^4 - 12x^3y + 60x^3z - x^2y^2 - 53x^2yz + 143x^2z^2 + xy^3 - 36xy^2z - 37xyz^2$$
$$+ 141xz^3 + 11y^4 - 10y^3z - 37y^2z^2 + 9yz^3 + 57z^4 = 0$$
is zero, and express the co-ordinates of points on it as quartic functions of a variable parameter.

17678. (Professor Neuberg.)—Le cercle osculateur en un point M d'une parabole recoupe cette courbe en M′; le cercle osculateur en M′ recoupe la parabole en M″; le cercle osculateur en M″ recoupe la parabole en M‴. Trouver les enveloppes des droites MM″, MM‴, lorsque M parcourt la parabole.

17679. (W. N. Bailey. Suggested by Question 17646.)—Show that the locus of the centres of conics through the vertices of a cyclic quadrilateral is a rectangular hyperbola.

17680. (Professor E. J. Nanson.)—If OPP′, OQQ′ cut a conic in P, P′, Q, Q′, show that OPP′, OQQ′ and the tangents at P, P′, Q, Q′ touch a second conic.

17681. (C. V. L. Lycett.)—Inscribe a triangle in an ellipse being given one vertex and the orthocentre.

17682. (J. M. Child, B.A., B.Sc. Suggested by Question 17649.)—Give constructions with ruler alone, being given three equidistant parallel straight lines, (i) to bisect any straight line, (ii) to find the centre of a given circle.

17683. (W. F. Beard, M.A.)—Any straight line through the centroid of a triangle divides two of the sides in ratios whose sum is unity.

17684. (E. G. Hogg, M.A.)—If P be any point on the circle ABC, then the points A, B, C, P and the symmedian points of the triangles ABC, BCP, CPA and APB lie on a conic.

17685. (F. G. W. Brown, B.Sc., L.C.P.)—In a triangle ABC, the bisector of the angle A and the median from A meet BC in E and D respectively; if m = length of AD, ρ, i = radii of circles circumscribing the respective triangles ABE, ADE, prove that
$$8i\,(b + c) = am \operatorname{cosec} \tfrac{1}{2}A;$$
hence, show that $$ic = m\rho.$$

17686. (Professor K. J. Sanjána, M.A.)—In a spherical *quadrangle* two opposite connectors, say b and y out of the six a, b, c, x, y, z, are quadrantal; prove that
$$\sin^2 a \sin^2 x + \sin^2 c \sin^2 z = 1 + 2\cos a \cos c \cos x \cos z.$$
In a spherical *quadrilateral* two opposite vertices, say B and Y out of the six A, B, C, X, Y, Z, are right-angled; prove that
$$\sin^2 A \sin^2 X + \sin^2 C \sin^2 Z = 1 + 2\cos A \cos C \cos X \cos Z.$$
What are the corresponding theorems *in plano*?

17687. (Professor J. C. Swaminarayan, M.A.)—Find the minimum value of $x + y + z$, subject to the condition
$$x^2 + y^2 + z^2 + t^2 = 2\,(yz + xt)\cos A + 2\,(zx + yt)\cos B + 2\,(xy + zt)\cos C,$$
where t is a known constant, and A, B, C are the angles of a plane triangle.

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13931. (Professor H. Langhorne Orchard, M.A., B.Sc.)—A sphere of radius a and mass m is placed within a "perfectly rough" hemisphere and suffered to descend. Supposing the sphere's centre to remain in one plane throughout the motion, find the friction.

13957. (Professor E. J. Nanson.)—If P_n denote the persymmetric determinant of order n formed with the elements $c_1, c_2, \ldots, c_{2n-1}$, and $P_2 = 0$, $P_3 = 0$, ..., $P_n = 0$; prove that $c_1, c_2, c_3, \ldots, c_{n+1}$ are in geometrical progression.

13984. (Professor S. Sircom, M.A.)—Integrate
$$x^2\,(d^4y/dx^4) + 2x\,(d^3y/dx^3) + c^2y = 0$$
in series and in definite integrals.

14062. (R. F. Muirhead.)—If
$$X \equiv ax^2 + bx + c, \quad \text{and} \quad X' \equiv a'x^2 + b'x + c',$$
and $$x\,(a'X^2 + b'XX' + c'X'^2) \equiv (aX^2 + bXX' + cX'^2),$$
show that X and X′ must have a common factor. Generalize the theorem by making X and X′ of higher degree than the second.

14273. (Rev. T. Mitcheson, B.A.)—The angle between a semi diameter of an ellipse, and the tangent at its extremity is a *minimum*, when the area of the rectangle contained by the co-ordinates of the tangential point is a *maximum*, *i.e.*, when $x = a/\sqrt{2}$, $y = b/\sqrt{2}$.

14355. (Rev. J. Cullen.)—Find forms of ϕ and ψ, such that
$$(\sin^2\theta\, d/d\theta)^n\, \phi(m, \theta) = \phi(m + n, \theta),$$
$$(\cos^2\theta\, d/d\theta)^{2n}\, \psi(m, \theta) = \psi(m + 2n, \theta).$$

NOTICE TO CORRESPONDENTS.

It is requested that all Mathematical communications should be sent to the Mathematical Editor,

Miss Constance I. Marks, B.A., 10 Matheson Road, West Kensington, W.

THE LONDON MATHEMATICAL SOCIETY.

Thursday, January 22, 1914.—Prof. A. E. H. Love, F.R.S., President, in the chair.

Mr. T. L. Wren was elected and admitted as a member.

Dr. Bromwich reported (as Secretary) that the number of members at the beginning of the present Session was 306.

The following papers were communicated:—

(i) "A Generalization of the Euler-Maclaurin Sum Formulæ," (ii) "The Deduction of the Formulæ of Mechanical Quadrature from the Generalized Euler-Maclaurin Sum Formulæ," (iii) "A Generalization of certain Sum-Formulæ in the Calculus of Finite Differences": Mr. S. T. Shovelton.

"On Binary Forms": Dr. A. Young.

"On Darboux's Method of Solution of Partial Differential Equations of the Second Order": Mr. J. R. Wilton.

Dr. Western (Hon. Treasurer) having taken the chair, the President made an informal communication on the potential of an electrified circular disc.

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Clarke, R.H. Tollington S., Muswell Hill

Evans, A.C. Balham Gram. S.
Richards, W.F.G. Mercers' S., Holborn, E.C.

Bodenham, R.J.W. *s.* The Palace S., Bewdley
Fisher, J. Norwich High S. for Boys
Kewley, J. Oakes Inst., Walton, Liverpool

Harries, T. Old College, Carmarthen
Hook, R.J. Wallingbrook S., Chulmleigh
Thomas, A. Private tuition

Croyden, S.B. Tollington S., Muswell Hill

Foward, W.J. Private tuition
Thomas, E.J. Old College, Carmarthen

Revelle, R.C. Private tuition
Taylor, R.C.N. The High S. for Boys, Croydon

Durtnell, C.S. Dorset H., Sevenoaks

Watson, G.H.G. Tollington S., Muswell Hill

Bugg, J.N. St. Mary's Coll., Harlow
Knight, R.C. Private tuition

Walker, J.L.G. *s.* Shoreham Gram. S.

Rae, R.J. The High S. for Boys, Croydon

Bryan, J.M. Private tuition

Burton, C. Archbp. Holgate's Gram. S., York

BOYS.

SECOND CLASS [or JUNIOR].

Honours Division.

Harvey, A.E. *e.a.al.gm.f.* Grosvenor Coll., Carlisle
Wells, G.P. *f.ge.* Private tuition
Vigurs, J.C.T. *a.al.* Newquay Coll., Cornwall
Follett, A.J. *g.a.* Priory Coll., Hornsey
Berkeley, C.J.A. *f.d.* Mercers' S., Holborn, E.C.
Hawkins, R.P. *s.g.d.* The High S., Brentwood
Turney, T.L. *s.h.* Oakes Inst., Walton, Liverpool
Ward, W.E.F. *f.* Mercers' S., Holborn, E.C.
Wilson, E.F. *a.* Acton College
Caveney, E.P. *l.* Mercers' S., Holborn, E.C.
Hawes, J.S. *a.f.* Mercers' S., Holborn, E.C.
Turner, A.R. *a.lt.* Tollington S., Muswell Hill
Matthews, R.P. *lt.* Tollington S., Muswell Hill
Walther, H.W. *a.al.ge.l.* Newcastle Modern S.
Coldrey, R.S. *lt.* Tollington S., Muswell Hill
Young, J.C. Mercers' S., Holborn, E.C.
Taylor, L.N. *s.e.* Oakes Inst., Walton, Liverpool
Bisgood, G.C. St. Mary's Coll., Harlow
Rouse, A. *s.al.* Oakes Inst., Walton, Liverpool
Ward, H.S. *h.f.l.* Private tuition
Paros, N. *s.* St. John's Coll., Finsbury Park
Emeleus, K.G. St. Leonards Coll., S.
Bartlett, J.E. Tollington S., Muswell Hill
Joues, K.C.J. *l.* Bedford Gram. S.
Elson, A. *s.* Southdown Coll., Eastbourne
Wesson, A.D. *lt.* Tollington S., Muswell Hill
Bradbury, J. Tollington S., Muswell Hill
Daniels, E.J. Norwich High S. for Boys
Gardiner, E.L. *a.* Mercers' S. Holboru, E.C.
Williams, H.G. *h.f.* Mercers' S., Holborn, E.C.
Painter, O.F.R. *e.h.a.* Kensington Coaching Coll., Nevern Sq., S.W.
Darling, O.R. *f.* Mount Radford S., Exeter
Lenton, S.H. *e.* Northampton & County S., Northampton
Bilton, E.E. *l.* Mercers' S., Holborn, E.C.
Chambers, P.C. Mercers' S., Holborn, E.C.
Large, G. *al.* Oakes Inst., Walton, Liverpool
Joyce, J.R. *d.* The High S. for Boys, Croydon
Watkins, A.B.K. *a.* Private tuition
Whitehead, D.M. Mercers' S., Holborn, E.C.
Laurens, S. *s.* Harleston H., St. Lawrence, Jersey
Relfe, W.E. *a.* St. Leonards Coll. S.
Wheeler, L.C. Shoreham Gram. S.
Woolnough, C.R.F. Tollington S., Muswell Hill
Bell, A.W. *f.* Private tuition
Maynard, A.W.H. Cranbrook Coll., Ilford
Nixon, L.R. *d.* Mercers' S., Holborn, E.C.
Browning, M.P. *e.a.* Private tuition
Jermyn, K. Shoreham Gram. S.
Lawson, D. *e.l.* Private tuition
McLachlan, K.A. *g.* Wilmslow College
Mack, A.S. *e.* Private tuition
Priestley, F.W. *ch.d.* Richmond Lodge, Torquay
Sercombe, K.W. St. Mary's Coll., Harlow
Avignone, C. Mercers' S., Holborn, E.C.
Dawes, H.B. *e.f.* Private tuition
Freegard, J.G.L. *lt.* Tollington S., Muswell Hill
Hockley, H.W. *d.* St. Mary's Coll., Harlow
Baker, C. Shoreham Gram. S.
Campbell, S. Oakes Inst., Walton, Liverpool
Hillman, T.E.J. Mercers' S., Holborn, E.C.
Palmer, H.G. Penketh School
Rayner, N.E. *f.d.* Beccles College
Sowerby, V.H. *e.* Humberstone Foundation S., Old Clee, Grimsby
Bauer, C. Tollington S., Muswell Hill
Flintan, R.D. *e.f.ge.* Private tuition
Griffiths, W.C. *h.f.* Private tuition
Priestley, C.L. *f.d.* Richmond Lodge, Torquay
Toomey, M.A. Tollington S., Muswell Hill
Cater, R.H. *e.a.* Gram. S., Kingston-on-Thames
Fletcher-Barrett, K. Private tuition
Hodson, F. *ms.* Oakes Inst., Walton, Liverpool
Stephens, R.A. Newquay Coll., Cornwall
Clift, W.A. *d.* Jersey Modern S., Colomberie, Jersey
Dean, H.V. *s.h.g.* 124A Sternhold Avenue, S.W.
Dodsworth, R.D. Tollington S., Muswell Hill
MacMahon, D. Argyle H., Sunderland

SECOND CLASS [or JUNIOR].

Pass Division.

Ellis, J. Penketh School
Lockie, J.F.D. Tollington S., Muswell Hill
Wyatt, R.G.P. *f.* Raleigh Coll., Brixton
Choom Jensontate *m.* Private tuition
Jones, D.J.H. *w.* Private tuition
Neckles, A.R. *f.* Carshalton College
Sankey, C.S. Penketh School
Du Val, G.L. Jersey Modern S., Colomberie, Jersey
Kirk, M.H. Mercers' S., Holborn, E.C.
Moat, F.H. Shoreham Gram. S.
Bishop, G.W.R. Private tuition
Murray, R.A. Newcastle Modern S.
Barnard, W.G. *e.a.l.* Private tuition
Matthews, R.L. St. Leonards Coll. S.
Barton, E.C. *f.l.* Allhallows S., Honiton
Neal, H.A. *h.d.* University College S., Hampstead
Wacher, J.S. Private tuition
Wood, W.H. *e.a.al.l.* Private tuition
Douglas, H.E.M.E. *f.* The College, Brighton
Hill, S. London Coll. for Choristers, Paddington
Puttick, R.J. *lt.d.* Tollington S., Muswell Hill
Robinson, S.R. *al.* Oakes Inst., Walton, Liverpool
Scott-Boss, M. Beverley S., Barnes
Smorfitt, W.H. Ashville Coll., Harrogate
Wilson, E.N. Private tuition
Culshaw, W.C. *s.* Scarborough College
Strong, C.J. Newquay Coll., Cornwall
Bately, S.H. *a.d.* Private tuition
Hagau, J.N.J. Private tuition
Trower, R.F. Seaford College
Bonyun, F.V. The High S. for Boys, Croydon
Boyle, J.M. *ge.ch.* Private tuition
Cowlin, R.J. St. Mary's Coll., Harlow
Myers, F.J. Private tuition
Thomson, B. Moseley Modern S.
Bower, S. Harleston H., St. Lawrence, Jersey
Colls, B.A. Barton S., Wisbech
Edwards, T.G. *a.* Mercers' S., Holborn, E.C.
Hobbs, B.E. Bourne Coll., Quinton
Carter, G.A.J. Oakes Inst., Walton, Liverpool
Course, R.R. Private tuition
Crowder, R.F. *f.* The High S. for Boys, Croydon
Douglas, J. *f.* Private tuition
Fleming, W.L. Argyle H., Sunderland
Godsill, S. Berkhamsted School
Pierce, L. St. Leonards Coll. S.
[1]Stantou, L.H. Tollington S., Muswell Hill
Blackburn, A.L. Loughton School
Harrison, S.E. *g.a.al.* Private tuition
Rees, H. Tollington S., Muswell Hill
Trathen, C. Balham Gram. S.
Turner, W.H. *h.a.* Private tuitoni
Johnson, A.J.R.F. Norwich High S. for Boys
Snell, G. Acton College
Allitt, P.A. *d.* Barton S., Wisbech
Fenton, C.E. Mercers' S., Holborn, E.C.
Gibson, F. Shoreham Gram. S.
Keays, W.St.J.V. Private tuition
Orrett, C.C. Acton College
Searle, A.C. *a.* Gram. S., Ongar
Lancaster, R.E. Laugharne S., Southsea
McAra, M.J.A. Fitzroy S., Crouch End
Moore, J.S. Private tuition
Smorfitt, F.A. Ashville Coll., Harrogate
Walker, P.S.R. Shoreham Gram. S.
Booth, T.A. St. John's Coll., Finsbury Park
Campion, W.T. Barton S., Wisbech
Durno, L.A. *f.l.* Dumfries Academy
Fenton, W.J.C. Mercers' S., Holborn, E.C.
Grounds, C.F. St. Mary's Coll., Harlow
Hargreave, E.B. Wilmslow College
Holdaway, E.D.W. Monkton H., Streatham
Jupe, A.J.D. Shoreham Gram. S.
Read, G.R. The Western Coll., Harrogate
Renison, N. Penketh School
Simpson, J.E. Greystones S. for Boys, Scarboro'
Chattey, G.W. Tollington S., Muswell Hill
Jones, R.D. Private tuition
Macrae, J.M. Private tuition
De Silva, J.P. Private tuition
Gaffyne, H.A.S. Richmond Hill S.
Roberts, E. *al.* Oakes Inst., Walton, Liverpool
Schwier, E.D. St. Mary's Coll., Harlow
Suddaby, W. Greystones S. for Boys, Scarboro'
Wix, J.F. Heathfield H., Crouch Hill
Allen, G.A. Private tuition
Ashbourne, A.B. *e.a.f.* Private tuition
Barker, D. Private tuition
Holbrook, G.L. Shoreham Gram. S.
Horsey, H.J. *e.d.* St. Mary's Coll., Harlow
March, R. *al.* Licensed Victuallers' S., Upper Kennington Lane, S.E.
[1]Motum, E.G. *s.* Norwich High S. for Boys
Smith, H. *al.f.* Private tuition
White, W.J. Highbury Park S., N.
Wilding, R.C. Oakes Inst., Walton, Liverpool
Burton, J.A. *h.* Private tuition
Smallbone, G.M. Loughton School
Brandon, T. *a.f.* Private tuition
Brider, A.S.H. *f.* The Modern S., Streatham Common
Foster, A. Weymouth College
Hardman, W. Private tuition
Stribling, B.H. Devonport High School
Torrance, D.B. Private tuition
Goldberg, J. Raleigh Coll., Brixton
Cooper, C.R. *e.* Private tuition
Day, C.B. Private tuition
Dennett, P.M. St. Leonards Coll. S.
Milligan, J.H. Colebrook H., Bognor
Bailey, H.C. Barton S., Wisbech
Coates, W.H.E. The Modern S., Streatham Common
Cosway, R. Penketh School
Denham, C.H. *d.* The Palace S., Bewdley
Macey, L.E. St. Leonards Coll. S.
Mackie, E.M.D. *s.* St. John's Coll., Brixton
Piercy, G.B. Undercliffe Coll., Ventnor
Christopherson, J.F. Mercers' S., Holborn, E.C.
Davies, D.J. *w.* Old College, Carmarthen
Gould, J.R. Wallingbrook S., Chulmleigh
Johnson, R.H.N.F. *f.* Private tuition
Meyer, F.A. Portsmouth Gram. S.
Newman, G.G. St. Mary's Coll., Harlow
Phillips, J.C.L. Private tuition
Sharland, E. Bournemouth Coll. S.
Caute, E.H.C. *f.* Poole Secondary S.
Dickson, E. *a.* Private tuition
Garton, S.J. St. John's Coll., Finsbury Park
London, H.E.G. Tollington S., Muswell Hill
Morley, P.J. New Collett H., Boscombe
Parker, H.T. *l.* University College S., Hampstead
Raynes, A.B. *lt.ch.* Private tuition
Thedham, C.R. Finsbury Park Coll., Green Lanes, N.
White, R.A.V. Wellingborough S.
Fear, E.F. Acton College
Fletcher, W.G. *f.* Private tuition
Morton, R.W. *lt.* Tollington S., Muswell Hill
Raeside, M. Private tuition
Weedon, V.C. Mercers' S., Holboru, E.C.
Gardener, W.A.B. The High S. for Boys, Croydon
Powell, B.B. Oxenford H., St. Lawrence, Jersey
Roberts, G. *a.* Private tuition
Tomkinsou, S.C. Crewe Academy
Young, E. The High S. for Boys, Croydon
Allen, J. *f.* The High S. for Boys, Croydon
Jones, G.B. Oakes Inst., Walton, Liverpool
Kimmitt, G.R. *s.f.* Castle Hill S., W. Ealing
Prynne, E. Private tuition
Sarre, P.V. Oxenford H., St. Lawrence, Jersey
Sherwell, A.E. *h.* Littleton H., Knowle, Bristol
Southin, J.R. Shoreham Gram. S.
[1]Wenninger, W.C. Wallingbrook S., Chulmleigh
[1]Williams, E. Private tuition
Bird, A.J. Fitzroy S., Crouch End
Dunn, A.E. Balham Gram. S.
Jones, T.M. Private tuition
Mead, J.D. *a.* St. Aubyn's, Woodford Green
Thurgood, C.F. St. Mary's Coll., Harlow
[1]Adie, F.W. The Palace S., Bewdley
Bebb, A.G. Oakes Inst., Walton, Liverpool
Bradley, E.A.J. Simon Langton's Boys' S., Canterbury
Butler, S.A.V. Mercers' S., Holborn, E.C.
Davidson, G. Wallingbrook S., Chulmleigh
DeGruchy, E.J. Oxenford H., St. Lawrence, Jersey
Maingot, E.L. Private tuition
Pallett, E.R. Repton School, Burton-on-Trent
Stokes, D.L. Private tuition
Way, W. The College, Weston-s.-Mare
Boulton, E.E.H. *s.g.* 124A Sternhold Avenue, S.W.
Crown, E. St. Mary's Coll., Harlow
Fleetwood, J. Fulwood Gram. S., Preston
Long, A.D. Shoreham Gram. S.
Phaffley, C.H. *a.ch.* Private tuition
Shirlaw, J.F. Shoreham Gram. S.
Warrington, J. Gram. S., Chorlton-cum-Hardy
Crowhurst, H.F. Gravesend Modern S.
Hichens, E.W.T. Private tuition
Kauntze, C.E.W. Littlebourne, Tunbridge Wells
Brown, E.N. Private tuition
Cooper, F. Private tuition
[1]Hurst, J. Grosvenor Coll., Carlisle
Jones, H.F.H. *e.f.* Private tuition
Moyse, M. *gm.* The High S., Brentwood
Pearl, H. Margate Comm. S.
Reepmaker, J.C. *f.* Private tuition
Ryss, W.G. *du.* Private tuition
Taylor, D.W. The High S. for Boys, Croydon
Walker, E. Beccles College
Gray, A.L. Private tuition
Mellor, H.E. *phys.* Mount Radford S., Exeter
Polyblank, W.P. Gram. S., Ongar
Strickland, W.A. Private tuition
Tadman, R.S. Shoreham Gram. S.
Wardell, J. Greystones S. for Boys, Scarboro'
Wilmshurst, R.A. The High S. for Boys, Croydon
Woodhead, G.R. Private tuition
Marshall, A.C.D. Clark's Coll., Stamford Hill, N.
Ridgeway, F. *s.* Penketh School
Wilkins, N.J. Thornton Heath High S.
Hope, H.B.T. Wellingborough S.
March, R.Q. Shoreham Gram. S.
Morris, C.B. Licensed Victuallers' S., Upper Kennington Lane, S.E.
Selby, P. Sunnybrae, Balcombe
Simpson, V.L. Private tuition
Willis, G.S.W. *f.* Ealing Catholic S.
Bodenham, S.W. The College, Weston-s.-Mare
Box, B. Colebrook H., Bognor
Cruttenden, G. Balham Gram. S.
Lee, P.M. Private tuition
Ward, F.W. Private tuition
Warren, J.W.E. Private tuition
[1]Whiteley, S.E. Gram. S., Chorlton-cum-Hardy
Ashdown, O.W. *d.* Wallingbrook S., Chulmleigh
Blockley, N.T. St. Dunstan's Coll., Margate
Chadwick, H.S. Private tuition
Evans, G.P. Private tuition
Haggis, F.C. *mu.* Private tuition
[1]Harrison, G.V. *ch.* Private tuition

BOYS, 2ND CLASS, PASS—*Continued.*

Hooson, D.J.S. Bourne Coll., Quinton
Olver, C.P. *d.* Hoe Gram. S., Plymouth
Ormiston, W.R. Grosvenor Coll., Carlisle
Seed, A.C. Grosvenor Coll., Carlisle
Wager, A. Norwich High S. for Boys
Walker, L.W. *d.* Scarborough College
Waters, L. *s.* Steyning Gram. S.

Brown, H. Fulwood Gram. S., Preston
Campbell, F. Harringay S., Green Lanes, N.
Davies, G.E. St. Mary's Coll., Harlow
Dawson, J.W. *a.* Private tuition
Eales-White, J.F.R. *e.* Private tuition
Kaye, C. *e.* Private tuition
Marshall, A.A. Oakes Inst., Walton, Liverpool
Neckles, A. Carshalton College
Siuton, G.H. *a.* Arlington Park Coll., Chiswick

Black, W.V. Shoreham Gram. S.
Foxcroft, G.A. Fitzroy S., Crouch End
Moores, C.L. Private tuition
Simon, E.J. Oxenford H., St. Lawrence, Jersey
Sunderland, V.L. Private tuition

Aston, T.H. Wallingbrook S., Chulmleigh
Clarke, E.L. St. Paul's S., West Kensington
Craig, J.K. Tollington S., Muswell Hill
Denning, W.E.F. Hoe Gram. S., Plymouth
Evans, C.C. Balham Gram. S.
Fenwick, T.K. Private tuition
Saunders, P.T. Shoreham Gram. S.
Scammell, F.H. St. Mary's Coll., Harlow
Smith, L.C.B. Private tuition
Sydal, W.E. Dorset H., Sevenoaks
Taylor, G.D. Oakes Inst., Walton, Liverpool

[1]Blake, A.L. Barton S., Wisbech
Foster, A.S. Ousegate S., Selby
Peuney, D.C. Laugharne S., Southsea
Terry, D.E. Gravesend Modern S.
Worthiugtou, R.J. Shoreham Gram. S.

Batterham, A.E.N. *f.* Heathfield H., Crouch Hill
Bell, D.D. Oakes Inst., Walton, Liverpool
Dingle, A.C. Hoe Gram. S., Plymouth
Galustian, A. Private tuition
Haley, W.J. *al.* Oxenford H., St. Lawrence, Jersey
Holden, E.C. Steyning Gram. S.
Lawes, R.F. Paddington High S. for Boys
Stocken, K.E. *f.* Merchant Taylors S., E.C.

Chubb, A.C.R. Shorcham Gram. S.
Davison, T. Blaydon Secondary S., Blaydon-on-Tyne
Garratt, C.J. Fulwood Gram. S., Preston
Warwick, C.W. Tollington S., Muswell Hill
Wells, J.R. Shoreham Gram. S.

Bradshaw, J.N.C. Fulwood Gram. S., Preston
[1]Breach, C. Steyning Gram. S.
Crowther, R. Greystones S. for Boys, Scarboro'
Down, R.T. Littleton H., Knowle, Bristol
Duun, W.H. Fitzroy S., Crouch End
Harper, J.W. Moseley Modern S.
Hoadley, C.J. Steyning Gram. S.
Pallant, N.K. Richmond Hill S.
Pannell, R.O. *a.* Private tuition

Ashley, M. New Coll., Harrogate
Hodgson, J. Fulwood Gram. S., Preston
Kelynack, R.H. Private tuition
Morel, F. St. Mary's High S., St. Helier
Richardson, H.A.L. Private tuition

Baker, G.H. Private tuition
Cook, C.H. Private tuition
Davy, A.G. Penketh School
Francis, N. Private tuition
Knowles, G.C. Private tuition
Mackavoy, J.R. *a.* Private tuition
Marriott, H.L. Gram. S., Ongar
Parsonage, R.P. Whitchurch Gram. S.
Pittock, B.G. *a.* Municipal Tech. S., Ipswich
[1]Ridgeway, J.A. *s.* Penketh School

Flower, L.R. Richmond Hill S.
Harmer, R.C. Gram. S., Ongar
Hooley, A.W. Private tuition
Lawn, H.A. *s.* Shoreham Gram. S.
Rivers, T.H. St. Mary's Coll., Harlow

Bartlett, E.P. Private tuition
Clapperton, H.I. Private tuition
[1]Cole, F.L. Cranbrook Coll., Ilford
Grant, C.G. Jersey Modern S., Colomberie, Jersey
Handley, J.G. Barton S., Wisbech
Shaw, H.V. The Palace S., Bewdley
Smyly, G.E. *f.* Private tuition
Wright, W.M. Scarborough College

Arnall, J.H Cambridge H., Norwich
Everett, S.J Private tuition
Ffoulkes, H. Heathfield H., Crouch Hill
Jones, H.L. St. Leonards Coll. S.
Jones, R.H. Private tuition
Morgau, F.C. The Douglas S., Cheltenham
Pickles, C.E. *h.* Private tuition
Ramage, W. Private tuition
Wilson, N. The Palace S., Bewdley

Unger, K.R. St. Paul's S., West Kensington

Cavaghan, T. *f.* Grosvenor Coll., Carlisle
Harrison, J.R. *a.* Private tuition
Hemming, W.L.F. St. Peter's Choir S., Eccleston St. East, S.W.
[1]Hodgson, T.W. *d.* Tollington S., Muswell Hill
Johnson, S. Crewe Academy
Kindness, J. Private tuition
Moar, A.J.J. Littleton H., Knowle, Bristol
Symonds, F.R. Private tuition

Dorking, H.J. Private tuition
Garcia, I.I.G. Private tuition
Gee, C. Cleophane's Coll., Gt. Portland St., W.
Mills, W. *a.* Private tuition
Perkins, A. Froebel H., Devonport
Ryder, H.G. Private tuition
Waddell, S.G. Richmond Lodge, Torquay
Waterson, W.J. The Modern S., Streatham Common

Chandler, J.C. Oakes Inst., Walton, Liverpool
Harger, F.E. Private tuition
Hudson, H. Oakes Inst., Walton, Liverpool
Perkins, W.G. Leighton Hall S., Carnforth
Powell, H.C. *d.* Littleton H., Knowle, Bristol

Appleby, E.A. St. Peter's Choir S., Eccleston St. East, S.W.
Bottrill, H.A. Fulwood Gram. S., Preston
Durkin, T.A. *a.* Private tuition
Fawcett, T.C. Scarborough College
Foster, W.C. *e.ch.* Private tuition
Harper, H.G. Moseley Modern S.
Harris, L.E. Dorset H., Sevenoaks
Hingley, R. The Palace S., Bewdley
[1]Hook, P.W. Dorset H., Sevenoaks
Houghton, R.P. Oakes Inst., Walton, Liverpool
McLellan, A. Bailey S., Durham
Peglar, F.R. King Alfred's S., Wantage
Williams, W.T.G. Oakes Inst., Walton, Liverpool

Best, G. Private tuition
Bradford, H.J. Private tuition
Crozier, J.G. Scarborough College
Goodban, C. Margate Comm. S.
Townson, E.H. West Cliff S., Preston
Vernon, H.L. Oakes Inst., Walton, Liverpool
Wilton, N.C. Private tuition

Bates, E. The High S. for Boys, Croydon
Bayer, A.G. Gram. S., Ongar
Briggs, A.G.E. Broadgate S., Nottingham
Harvey, E. *a.* Private tuition
Hill, H. Gram. S., Chorlton-cum-Hardy
Mote, J.H. St. John's Coll., Finsbury Park

Tyler, F.D. Gravesend Modern S.
Williamson, R.S. Private tuition

Gretton, H.T.A. Private tuition
Hendry, A.B. Private tuition
Howell-Jones, A.C. Littleton H., Knowle, Bristol
Stephens, A.S. Dorset H., Sevenoaks
Timings, L.J. *f.* Private tuition
Waterman, J.H. Wallingbrook S., Chulmleigh

Dilworth, R.F. Private tuition
Edwards, F.H. Gravesend Modern S.
Gibbons, A.V. Private tuition
Hulme, J.W. *h.* Private tuition
Redwood, D.I. Summerleaze Coll. S., East Harptree
Taylor, A.P. Private tuition

Bradbeer, E.G. Mount Radford S., Exeter
Croft, R.H. Chichester Gram. S.
Hassell, J.R. Herne H., Cliftonville, Margate
Hicks, H. Shoreham Gram. S.
Millward, S.H. Ashville Coll., Harrogate
Morton, W. Southport Modern S.
Pike, H.W. Margate Comm. S.
Robinson, E. Fulwood Gram. S., Preston
Stokes, W.R.F. Lancaster Coll., W. Norwood

Gompertz, A. Westoe Secondary S., S. Shields
Hocking, G.R. Newquay Coll., Cornwall
Maun, E.R. Balham Gram. S.
Norfolk, E.L. Laugharne S., Southsea
Penfold, F.H. The High S. for Boys, Croydon
Veasey, W.C.V. Shoreham Gram. S.

Chan, K.W. Mount Radford S., Exeter
Dymond, L.B. Wallingbrook S., Chulmleigh
James, J. *s.* Newquay Coll., Cornwall
Jones, E.L.B. Dorset H., Sevenoaks
Keep, G.H. Streatham Moderu S.
Lloyd, J.E. South-Western Polytechnic Sec. S., Chelsea
Osborn, R.H. Barton S., Wisbech
Richardson, W.D. Scarborough College

Dalton, R. Private tuition
Lound, J.D. Private tuition
McMechan, S.F.D. *f.* Private tuition
Scarth, J.T. Private tuition

Brazao, E. Private tuition
Monk, W.H. Private tuition
Payne, R.W. The College, Weston-s.-Mare
Penley, R.J.B. Private tuition

Miller, H.B. Richmond Hill S.
O'Neill, B.C. Jersey Modern S., Colomberie, Jersey
Sergeant, K.R. Private tuitiou

Bond, S. Hoe Gram. S., Plymouth
Demmery, B.V. Wallingbrook S., Chulmleigh
Heard, W. Private tuition
Heuday, E.V. Shoreham Gram. S.
Loftus, J.E. York Model S., Training Coll., York
O'Donovan, M. Private tuition
Powleslaud, N.W. Wallingbrook S., Chulmleigh
Shaw, D.B. Clifton Coll., North Shore, Blackpool
Wheaton, H. Wilton H., Exeter

Dean, W.H. St. John's Coll., Finsbury Park
Drayton, R.E. Private tuition
Green, G.A. Southport Modern S.
Hunt, E.V. Private tuition
Molyneux, T.H. Private tuition
Monk, E.G. Private tuition

Carlyon, B. Margate Comm. S.
Cumming, W. Private tuition
Greensted, R.E. Private tuition
Mather, A. Private tuition
Robb, S. Beccles College
Walters, F.G.S. Private tuition
Watkins, N.C. *f.* Ingatestone H., Ingatestone
Williamson, T.A. Private tuition

Godfrey, A. Bailey S., Durham
Long, F.J.B.C. Thornton Heath High S.
Millhouse, J. Scarborough College
Taylor, E.M.F. Private tuitiou

Flowers, W.S. Private tuition
Frossard, H.L. Private tuition
Gates, H. Private tuition
Harding, J.C.W. Barton S., Wisbech
Moncur, J.W. Argyle H., Sunderland
Todd, G.L. Private tuition
Warwick, A.J. Tollington S., Muswell Hill

Howarth, N.S. Fulwood Gram. S., Prestou
Lloyd, C. St. Leonards Coll. S.
Lock, C.S. The Chesntuts, Heuley-on-Thames

Brown, W.J. Scarborough College
Butler, E.J. Laurence's Coll., Birmingham
Cope, L.E. St. Leonards Coll. S.
Curtis, F.W. Private tuition
Haworth, E.B. Private tuition
Lokrantz, S.R. Private tuition
Pinks, A. St. Peter's Choir S., Eccleston St. East, S.W.
Sutcliffe, W.S. *lt.* Tollington S., Muswell Hill

Barnes, N. Private tuition
Greeu, W.J. The High S. for Boys, Croydon
Hamel-Smith, K. The High S. for Boys, Croydon
Harley, L.S. Fitzroy S., Crouch End
[1]Miller, L.A. Barton S., Wisbech
Wilcox, E.D. Southport Modern S.

Calvert, A. Private tuition
Douglas, C.F. Ashville Coll., Harrogate
[1]Gregg, R. Gram. S., Margate
Pahl, E.H. St. John's Coll., Finsbury Park
Palmer, G.S. Beccles College
Phillips, G. Private tuition
Pullen, A.H. *d.* Ryde H., Ripley

Hector, A. Leighton Hall S., Carnforth
Leonard, J.P.V. Private tuition
Raby, J.N. Hoe Gram. S., Plymouth

Boddy, G. Dunn's Endowed S., Crediton
Grover, A.J. Clark's Coll., Chancery Lane, W.C.
Hamilton, J. Private tuition
Kingdom, J.W. St. Leonard's Coll. S.
Squire, F.G. Private tuition
Walker, A.V. Private tuition
West, L.G. Thornton Heath High S.

[1]Caplan, P.I. Private tuition
French, W.W. The School, Wellington Rd., Taunton
Henry, T.R. Private tuition
Hill, E.K. Scarborough College

Barrington, W.L. All Saints' Choir S., Clifton, Bristol
Haycraft, A.M. Private tuition
Moulden, C.D. Fulwood Gram. S., Preston

Botting, H.H. Ryde H., Ripley
Ford, D.A.K. The High S. for Boys, Croydon
Penketh, L.T. Private tuition
Sawyer, A.C. Private tuition
Sherwood, F.C. The Modern S., Streatham Common

Curtis, G. Private tuition
Tidbury, M.E. The Modern S., Minehead

Buck, M.W. Paddington High S. for Boys
Clark, J.G. Private tuition
Keyes, S. Private tuition
Lee, C.C. Tollington S., Muswell Hill

Spearing, E.J. Hoe Gram. S., Plymouth

Harvey, G. Beccles College
Thomas, J.L. Old College, Carmarthen

Matthews, P. Mount Radford S., Exeter

Ayliffe, L. Private tuition
Irivess-Smith, R.H. Herne H., Cliftonville, Margate
Jamieson, A.F. Oakes Inst., Walton, Liverpool
Ogden, W.F. Greystones S. for Boys, Scarboro'
Pattinson, T. Southport Modern S.

Opie, B.I. Private tuition
Woodhouse, A. Scarborough College

THIRD CLASS.

Honours Division.

Hainsworth, J.R. *s.e.a.lt.* Newquay Coll., Cornwall
Hamilton, C.W. *s.e.g.a.mu.* York Minster Choir S.

Breckon, J.W. *s.e.g.a.al.mu.* York Minster Choir S.
Robertson, T.W. *s.e.a.al.mu.* York Minster Choir S.

Arnold, H.G. *s.e.a.al.gm.f.* Norwich High S. for Boys
Fuller, F.M. *e.a.al.gm.ge.* Shoreham Gram. S.

Lacey, E.R. *e.sc.* Lancaster Coll., W. Norwood
Mackey, J.W. *e.h.a.al.gm.* Shoreham Gram. S.

Pratt, A.E.J. *s.e.a.al.d.* Licensed Victuallers' S., Upper Kennington Lane, S.E.
Read, G.D. *e.a.al.* Alderman Norman's Endowed S., Norwich

Davies, W. *a.al.* Oakes Inst., Walton, Liverpool
Fiumi, N.J. *i.* Liuton H., Holland Park Avenue, W.
Kent, G.R. *s.e.a.al.* West End S., St. Helier

Assenheim, P. *a.al.gm.* Shoreham Gram. S.
Fortnum, G.L.J. *a.al.* The College, Weston-s.-Mare
Goldsmith, C.E. *e.a.al.* The Modern S., Minehead
Holdaway, A.J. *h.a.al.* Monkton H., Streatham
Morris, A.H. *a.al.gm.* Shoreham Gram. S.

Miller, W.H. *e.a.al.d.* Alderman Norman's Endowed S., Norwich

BOYS, 3RD CLASS, HONOURS—*Continued.*

Lloyd, T.E. *h.al.d.* The Palace S., Bewdley
Starkey, G. *e.a.al.* Cranbrook Coll., Ilford

Davis, R.T. *a.al.* St. John's Coll., Finsbury Park

Bond, C.W. *a.al.* Alderman Norman's Endowed S., Norwich
Forster, H.J. *e.a.al.* St. John's Coll., Finsbury Park
Hobson, W.L. *al.gm.* New Coll., Harrogate
Perée, H. *a.al.gm.* Jersey Modern S., Colomberie, Jersey

Brooks, C.H. *a.al.* Oakes Inst., Walton, Liverpool
Chambers, A.B. *e.gm.d.* Shoreham Gram. S.

Lea, C.A.E. *a.f.l.* Steyning Gram. S.
Phillips, R.A. *a.al.gm.d.* Shoreham Gram. S.

Cutler, D.G.S. *a.al.* The High S. for Boys, Croydon
Livett, R.A. *a.al.gm.* Shoreham Gram. S.
Smith, W.E. *e.a.al.* Oakes Inst., Walton, Liverpool

Clift, B.L. *a.al.gm.* Jersey Modern S., Colomberie, Jersey

McIntyre, J.L. *a.al.* Shoreham Gram. S.
Pratt, J.R. *e.* Scarborough College
Simon, E.J. *s.* Harleston H., St. Lawrence, Jersey

Riche, E.L.H. *a.* St. Aubyn's, Woodford Green
White, D.D.G. *a.al.gm.* Shoreham Gram. S.

Atkinson, F.R. *e.d.* New Coll., Harrogate
Grimsdale, A.E.K. *g.a.al.gm.d.* Steyning Gram. S.

Bray, C. *a.sh.* Cherwell H., Bexhill-on-Sea
Paros, I. *e.h.a.al.* St. John's Coll., Finsbury Park
Wilson, J.W. *bk.* Fulwood Gram. S., Preston

Batchelor, L.G. *a.al.* The Modern S., Minehead
Butt, D.M. *al.* Richmond Hill S.
Clayton, A.A. *a.al.* Broadgate S., Nottingham
Drewry, G.H. *al.* Broadgate S., Nottingham
Fox, J. *a.al.* The College, Bridlington
Frost, C.T.T. *a.al.d.* Steyning Gram. S.
Kingston, R.G. *al.gm.* Shoreham Gram. S.
Munden, H.H.E. *al.* Licensed Victuallers' S., Upper Kennington Lane, S.E.
Prater, A.F.V. *a.* Seaford College
Roper, C.W. *s.a.al.* Bickerton H., Birkdale, Southport
Sinden, L.W. *g.a.al.* Steyning Gram. S.

Carruthers, W.A. *e.* Argyle H., Sunderland
Davis, J.C. *s.e.a.* Licensed Victuallers' S., Upper Kennington Lane, S.E.
Evans, W.S. *a.* Old College S., Carmarthen
Piuel, A.H. Harleston H., St. Lawrence, Jersey
Williams, T.E. *al.* Upton Coll., Bexley Heath
Worthington, A. *a.al.* Gram. S., Hyde

McFarlane, C. *a.* Grosvenor Coll., Carlisle

Baily, B.H.A.C. *al.* Broadgate S., Nottingham
Charnley, J.E. *a.* Bickerton H., Birkdale, Southport
Cuthbert, E. *e.a.al.* Highbury Park S., N.
Franklin, R. St. Aubyn's, Woodford Green
Gerrans, C. *al.* Southend-on-Sea Gram. S.
Gooding, H.W. *e.a.* Wallingbrook S., Chulmleigh
Henman, P.S. *al.gm.* Shoreham Gram. S.
Miller, T.D. *d.* Argyle H., Sunderland
Pollock, L. Argyle H., Sunderland

THIRD CLASS.

Pass Division.

²Wood, F. Tollington S., Muswell Hill
²Gould, V.F.H. Esplanade H., Southsea
²Wilmot, A.W.C. *ch.* Richmond Lodge, Torquay
²Milner, R. Tollington S., Muswell Hill

²Binet, P.E. *f.* Maida Vale S., W.
²Smith, A.H. Gravesend Modern S.

Burdock, C.B. Balham Gram. S.

²Deschamps, P. Gram. S., Chorlton-cum-Hardy
²Griffiths, C.L.R. Chichester Gram. S.
²Marklew, I.G. All Saints' Choir S., Clifton, Bristol

²Cull, C.R. Buckingham Place Acad., Landport, Portsmouth
²Randle, A.I.R. St. Leonards Coll. S.

Cowell, F.G. *e.a.al.d.* Licensed Victuallers' S., Upper Kennington Lane, S.E.
de Gruchy, C.B. *a.* West End S., St. Helier
Harrington, H.W. *e.g.a.* The High S., Brentwood
Iversen, H.M. *a.al.* Steyning Gram. S.
Madhuprot, P. Private tuition

Chamberlain, A.W. *a.* Shoreham Gram. S.
Knight, W.E. *h.a.* Wilton H., Exeter
Licence, L.G. The Palace S., Bewdley
Shimmin, H. *s.a.al* Oakes Inst., Walton, Liverpool
Stafford, F.A. Richmond Hill S.

Drake, J.W. Alderman Norman's Endowed S., Norwich
Syvret, A.C. *e.a.al.f.* Oxenford H., St. Lawrence, Jersey
Wilson, G.C. Fulwood Gram. S., Preston

Damsell, J.E. *a.al.* Oakes Inst., Walton, Liverpool
Dixon, G.L. Seaford College
Harris, H.R. *s.e.a.* Licensed Victuallers' S., Upper Kennington Lane, S.E.
Pyne, J.G. *a.* Mount Radford S., Exeter
Taylor, R.V. *a.al.* Oakes Inst., Walton, Liverpool

Panting, G.R. *gm.* Mount Radford S., Exeter
²Taylor, E.G. Paddington High S. for Boys
Wilkins, R.E.G. *a.al.* Steyning Gram. S.

Carr, J.H. *al.* Grosvenor Coll., Carlisle
Syvret, C.J. *f.* Harleston H., St. Lawrence, Jersey
Thompson, J.H. Bickerton H., Birkdale, Southport
Vincent, T.C.L. *s.a.* Private tuition

²Grist, F. Margate Comm. S.
Haynes, A.A. *e.d.* Colebrook H., Bognor
Hirst, F.C. New Coll., Harrogate
Lee, C.E. *a.* St. Peter's Choir S., Ecclestone St. East, S.W.
²Swalwell, J.A. Shoreham Gram. S.
Themans, L. *al.* The Western Coll, Harrogate
²Wingham, T.H. Chichester Gram. S.

²Blackwell, G. Margate Comm. S.
Hill, C.W. *a.* Mount Radford S., Exeter
Hosegood, E.J. *e.* The High S., Brentwood
Longmuir, H.N. *a.al.* Oakes Inst., Walton, Liverpool

Elliot, T.M. *a.* Grosvenor Coll., Carlisle
Hatchard, D.R.H. *e.al.gm.* Bourne Coll., Quinton
Knight, D.R. *a.bk.* Oxford H., Herne Bay
Marshall, S.E. *al.* St. Peter's Choir S., Ecclestone St. East, S.W.
²Rhodes, G.L. Gram. S., Chorlton-cum-Hardy
Rowlands, W.M. Bickerton H., Birkdale, Southport
Stevenson, H.T. St. John's Coll., Finsbury Park
Thacker, A.L. *a.* Bourne Coll., Quinton

Amos, D.V. *s.al.* St. Peter's Choir S., Ecclestone St. East, S.W.
Brasher, C.H. *e.* Belmore H., Cheltenham
Clark, H.C. *a.al.gm.* Southampton Boys' Coll. and High S.
Cook, A.E. New Coll., Harrogate
Earnshaw, C. *e.* Cliftonville Coll., Margate
²Payne, J. Southport Modern S.
Purse, R.B.W. Shoreham Gram. S.
Shenton, J.G.H.G. *a.al.* Froebel H., Devonport
Syvret, A.G. Harleston H., St. Lawrence, Jersey

Bransby, A. *gm.* Penketh School
Caddick, A.F. The High S. for Boys, Croydon
Cortis, W.N. *d.* Steyning Gram. S.
Crichton, J.G. *a.al.* St. John's Coll., Finsbury Park
²Dorn, H.C. *d.* Private tuition
Hargreave, G. Wilmslow College
Kimber, O.F. Cranbrook Coll., Ilford
Owen, R.G. *h.* Cranbrook Coll., Ilford
Sidebottom, C. *al.* Seaford College

Gorric, J.C. *a.al.* Oakes Inst., Walton, Liverpool
Hartley, J.B. New Coll., Harrogate
Page, R.O. *h.* The Palace S., Bewdley
Powell, G.R. Shoreham Gram. S.
Symonds, F.J. *e.f.* Seaford College
Thirtle, A.C. *al.* Norwich High S. for Boys

²Alman, C. Acton College
Ashdown, D.P. Gravesend Modern S.
Ballantyne, R.E. Grosvenor Coll., Carlisle
Clarke, F.L. *a.* Cliftonville Coll., Margate
Green, B. *gm.* Shoreham Gram. S.
Hopkins, A.L. *a.* St. Aubyn's, Woodford Green
Rix, R.W. Shoreham Gram. S.
Stephenson, H. *al.ge.* Scarborough Gram. S.
Vincent, R. *e.* St. Aubyn's, Woodford Green

Baker, F.J. *a.* Shoreham Gram. S.
Bennett, R.P. Gram. S., Ongar
²Blenkiron, B. The High S. for Boys, Croydon
Couch, K.G. *e.* Brynmelyn S., Weston-s.-Mare
Darling, R.H. *a.* Mount Radford S., Exeter
Droscher, W. *a.al.* Clark's Modern S., Forest Gate
Harris, W.F.H. *a.d.* Belmore H., Cheltenham
²Healing, A.F. The High S. for Boys, Croydon
Hoddinott, L.J. *e.h.* Summerleaze Coll. S., East Harptree
Kelly, W.G.F. Ascham H., Harrogate
LeChasseur, G.K. West End S., St. Helier
LeSueur, C.J. *a.f.d.* Harleston H., St. Lawrence, Jersey
²Long, C. Oxenford H., St. Lawrence, Jersey
Mallet, A. *a.al.f.* Springside H., Gorey, Jersey
Pearson, H.R. *e.* Norwich High S. for Boys
Sandercock, K.L. *s.e.* Newquay Coll., Cornwall
²Tuck, B. Barton S., Wisbech
Whitaker, L. St. John's Coll., Finsbury Park
²Worsfold, W.J. Ryde H., Ripley

Blackman, P.H.D. *a.* St. Peter's Choir S., Ecclestone St. East, S.W.
Buck, E.R. Oxenford H., St. Lawrence, Jersey
Buck, I. *a.al.* Bickerton H., Birkdale, Southport
Chambers, E.A.C. Shoreham Gram. S.
²Duckworth, W.E. Grosvenor Coll., Carlisle
Earnshaw, R. Cliftonville Coll., Margate
Harradon, R.C. Froebel H., Devonport
²Jackson, H. Bailey S., Durham
Kelsall, T.M. *e.* Penketh School
Pritchett, G.A. *h.* The Palace S., Bewdley
Richardson, B. Kilgrimol S., St. Anne's-on-Sea
Wenninger, F.P. *h.* Wallingbrook S., Chulmleigh
²Worrall, F.J. Southport Modern S.

Blake, H.W. Gravesend Modern S.
Bodenham, F.J.W. The Palace S., Bewdley
Cousens, T.C. Shoreham Gram. S.
Gnapp, E. *d.* Beccles College
Page, W.E.C. The College, Weston-s.-Mare
Pugh, H.L. *al.gm.* Bourne Coll., Quinton
Robinson, F. Leighton Hall S., Carnforth
²Tinsley, J.E. Fulwood Gram. S., Preston
Todd, F.E. *e.a.* Beccles College
²Walmsley, T. Southport Modern S.
Webber, A.C. *d.* The School, Wellington Rd., Taunton

Dench, R.J. Shoreham Gram. S.
Harrison, L.W.H. The Modern S., Minehead
Vasconcellos, A.L. Linton H., Holland Park Avenue, W.
Wells, F.R. Private tuition
Wells, P.B. *e.d.* Licensed Victuallers' S., Upper Kennington Lane, S.E.

Andrews, E. *a.* Southend-on-Sea Gram. S.
Apted, H.H. *e.a.* Campbell H., Bristol
Carver, S.M. *a.* West End S., St. Helier
²Downing, A.W. St. Peter's Choir S., Ecclestone St. East, S.W.
²Jack, J.F. Tollington S., Muswell Hill
Jackson, A.F. St. Peter's Choir S., Ecclestone St. East, S.W.
Joseph, V. Steyne S., Worthing
Phillips, J. Shoreham Gram. S.
²Rendell, J.H. Thornton Heath High S.
²Simon, E.L. Gram. S., Ongar
Smith, C. *s.* Hill Croft High S., Stamford Hill
Swinbank, R. Leighton Hall S., Carnforth
Waters, H.B. Hove College

Hamon, A.P. Oxenford H., St. Lawrence, Jersey
Hughes, F.G. St. Mary's Coll., Harlow
Le Rucz, S.P. *e.* Harleston H., St. Lawrence, Jersey
London, T.H. *e.* Grosvenor Coll., Carlisle
²Nock, F.L. The Palace S., Bewdley
Norwood, A.C.S.H. *d.* Dorset H., Sevenoaks
Partridge, R.A.M. *a.d.* The High S., Brentwood
Richardson, G. *s.e.a.al.* Ascham H., Harrogate
Robinson, N. *al.* Southend-on-Sea Gram. S.
Sers, W. Margate Comm. S.

Allen, E.M. *al.* Thornton Heath High S.
Bell, A. Grosvenor Coll., Carlisle
Bomford, B.H. *al.* Bourne Coll., Quinton
Chilvers, E.G.D. Castle Hill S., W. Ealing
Cole, A.J. Upton Coll., Bexley Heath
Cuthill, R. Grosvenor Coll., Carlisle
²Hills, R.H. St. Dunstan's Coll., Margate
Le Seelleur, J.T. *a.al.f.* Springside H., Gorey, Jersey
²Maclean, D.C. The High S. for Boys, Croydon
²Nuttall, W.V. Penketh School
Raven, C.H. *a.* The High S., Brentwood
Silver, R.A. St. Peter's Choir S., Ecclestone St. East, S.W.
Smith, L.J.G. Upton Coll., Bexley Heath

Baker, J.J. Gram. S., Ongar
²Bernard, C.H.T. Paddington High S. for Boys
Blackman, R.J. *h.* Gravesend Modern S.
Bradley, J.F.C. Shoreham Gram. S.
Francis, R.K. *a.* The College, Weston-s.-Mare
Hawkes, E.A. Ryde H., Ripley
Heywood, J. Leighton Hall S., Carnforth
Hutchinson, R.D. Argyle H., Sunderland
Langlois, J. Jersey Modern S., Colomberie, Jersey
McDowell, E.J.P. Manor H., Clapham
Merifield, F.W. *a.al.* Boys' High S., Erdington
Midgley, J.H. *e.* Leighton Hall S., Carnforth
Pipon, A.S. Harleston H., St. Lawrence, Jersey
²Rowe, H.J. Chichester Gram. S.
Sellin, J.F. All Saints' Choir S., Clifton, Bristol
²Sey, C.E. Eton H., Hull

Appleton, E.S. Priory Coll., Hornsey
DaSilva, E.S. *a.f.* Southdown Coll., Eastbourne
Gay, H.G. Priory Coll., Hornsey
Green, G.A. Licensed Victuallers' S., Upper Kennington Lane, S.E.
Hawkins, R. Margate Comm. S.
Lampard, S.M. Scarborough College
Le Masurier, R. *f.* Les Landes H., Faldouet, Jersey
Ries, S.E. *a.* Oakes Inst., Walton, Liverpool
Roberts, T.E. St. Mary's Hall, Cardiff
Scholes, H. Clifton Coll., North Shore, Blackpool
Shirlaw, L.P. Shoreham Gram. S.
Todd, W.T. Oakes Inst., Walton, Liverpool
Watts, C.D. Shoreham Gram. S.
Wood, G. The Palace S., Bewdley

Blaikie, S.G. Hove College
Birmingham, A. *a.* St. Placid's, Ramsgate
Bradshaw, H.H. Fulwood Gram. S., Preston
Bush, E.G.B. *e.* Acton College
Clayton, R.M. *a.* Colebrook H., Bognor
Davis, P.S. The High S. for Boys, Croydon
²Dyer, K. St. Leonards Coll. S.
Forge, E.L. St. Aubyn's, Woodford Green
²Grime, H. Fulwood Gram. S., Preston
Hill, L.A.G. St. Peter's Choir S., Ecclestone St. East, S.W.
Hobson, T.H. Scarborough College
Kaye, N. St. John's Coll., Finsbury Park
Morris, C.J. *al.* Broadgate S., Nottingham
Trenerry, J.C. Norwich High S. for Boys
Tweddle, T. Grosvenor Coll., Carlisle
²Watson, D. Leighton Hall S., Carnforth
Winkworth, F.E. *s.* Les Landes H., Faldouet, Jersey

Bland, S.E. Heathfield H., Crouch Hill
Brown, H.O. Cliftonville Coll., Margate
Cardoso, J. *f.d.* The College, Bridlington
Clark, F.W. *al.d.* Beccles College
²Clark, L. Grosvenor Coll., Carlisle
Crawford, G.D. *f.* Seaford College
Fayers, R.E. Heathfield H., Crouch Hill
Filmer, H.E. *a.* Shoreham Gram. S.
Hargreaves, A. Rusholme High S.
King, C. *a.al.* Civil Service Acad. and Comm. Coll., Manchester
²Morgan, E.W. Beccles College
Renwick, H.P. St. Leonards Coll. S.
Richardson, R.A. Grosvenor Coll., Carlisle
Sers, T. *e.* Margate Comm. S.

BOYS, 3RD CLASS, PASS—*Continued.*

Bond, H.E. Gravesend Modern S.
Botting, N.P. Ryde H., Ripley
Brown, C.H. *a.* Seaford College
Burns, G.H. St. Placids, Ramsgate
France, N. Lytham Coll., Lytham
Goode, A.G. St. Peter's Choir S., Eccleston St. East, S.W.
Habesch, J.S. The Western Coll., Harrogate
Hamper, F.G.R. Scarborough Gram. S.,
Hancock, C.D. Wembley House, Wembley
Helsby, W. Lytham Coll., Lytham
Roberts, H.W. The Palace S., Bewdley
Sayer, D.H. *h.* St. Leonards Coll. S.
Staight, I.C. The Douglas S., Cheltenham
Symondson, A.M. St. Aubyn's, Woodford Green

Allan, D.J. Scarborough College
Bennett, W.G.D. Manor H., Clapham
Bond, W.W. *a.* Norwich High S. for Boys
²Devitt, W. Southport Modern S.
²Duval, G.D. Tankerton Coll., Whitstable
²Evans, D.S. Old College, Carmarthen
Greenland, A.H. *a.* Oakes Inst., Walton, Liverpool
Harris, B.A. Gram S., Ongar
²Herling, E.J.M. Fulwood Gram. S., Preston
LeBoutellier, H. *a* Jersey Modern S., Colomberie, Jersey
Lomax, H. *e.* Kilgrimol S., St. Anne's-on-Sea
Randall, C.O. Streatham Modern S.
Stockwell, D.B. The College, Bridlington

²Hopkins, H.J. Richmond Hill S.
Jones, A.W. Lytham Coll., Lytham
Kendal, P.B. *a.* Cowfold Gram. S.
²Kerswell, A.J. Hoe Gram. S., Plymouth
Lupton, J.D. The High S. for Boys, Croydon
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Continued on page 107.

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ge. = German.
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Chatterton, D.V. *s.e.d.mu.* — St. Dunstan's Coll., Margate
Dell, D.H. *s.h.d.* — Crouch End High S. & Coll., Hornsey
Blair, G.E.A. *e.f.* — Private tuition
Reeves, M.E. *s.* — Sunnyland S. for Girls, Henley-on-Thames
Symmons, E.M. *s.* — Priory Coll., Hornsey

SECOND CLASS [or JUNIOR].

Pass Division.

[1]Davies, H. *s.w.do* — Private tuition
[1]King, K.M. — Dunmore S., St. Leonards-on-Sea
[1]Franks, Y. *s.mu.* — Conway H., Farnborough
[1]Garner, A.A.F. *s.* — Rock Hill S., Chulmleigh
Langton, M.R. *s.* — Rock Hill S., Chulmleigh
Fozard, P. — Girls' High S., Rothwell
Porter, B. *e.h.f.* — Private tuition
Ramsay, H.A. *f.* — English High S. for Girls, Constantinople
[1]Turner, N.A.M. *s.* — Private tuition
Wildon, E.A. *s.* — Ladies' Coll., Nantwich
Collins, D.E. *s.* — Hillside Modern S., Wealdstone
Morgan, M.M.A. *e.ch.* — Private tuition
Jones, A. — High S., Twickenham Green
Golby, E.A. — Crouch End High S. & Coll., Hornsey
[1]Bowden-Pickstock, L.O. *s.* — Rock Hill S., Chulmleigh
Humby, M.F. — Private tuition
Bernhardt, B.C. — Private tuition
Baxter, J.A. — Private tuition
[1]Jones, E.G. *w.* — Tutorial S., New Quay, Cardigan
Cavendish-Bentinck, J. *f.ge.* — Private tuition
Elvidge, G.M. — Finsbury Park High S., Adolphus Rd., N.
[1]Roe, D.E. — Ravensworth, Scarborough
[1]Green, D.G. *e.* — Private tuition
Marshall, D. — Leighton Hall S., Carnforth
Holliday, S.A. — Ainstable, Armathwaite
[1]Thomas, M.G. *s.* — Pengwern Coll., Cheltenham
Tanner, O.H.V. *mu.* — Bourne H., Eastbourne
[1]Watkins, E.M. *s.do.* — Private tuition
Sadgrove, E.R. *s.* — Bourne H., Eastbourne
Jackson, F.D. *f.* — Private tuition
Jones, D.S.M. — Belle Vue, Herne Bay
[1]Milichiadès, D. — English High S. for Girls, Constantinople
[1]Mehmet Ali, N. — English High S. for Girls, Constantinople
[1]Thomas, R.J. — Private tuition
[1]Bowen, D.M. *s.* — Private tuition
[1]Cawkwell, D. *do.* — Roanoke Coll. S., Palmer's Green
Silley, R.A. *f.* — English High S. for Girls, Constantinople
Weale, D.J. — English High S. for Girls, Constantinople
[1]Edwards, E. *do.* — Private tuition
Smith, C.V. — Royal Masonic Inst., Clapham Junction
[1]Galimidi, A. — English High S. for Girls, Constantinople
[1]Morgan, G. — Private tuition
[1]Botting, A.L.E. — Cowfold Gram. S.
Defriez, D.B. *do.* — Licensed Victuallers' S., Upper Kennington Lane, S.E.
[1]Duffy, I. *s.* — Private tuition
Hand, R. *s.* — Private tuition
[1]Bradley, R.F. — Ravensworth, Scarborough
Brown, M.W. — Laton H., Hastings
Codner, E.V.M. — Private tuition
Sella, M. *f.sp.* — Our Lady's Conv., Tonbridge
Collins, G. — Iona, High S., Ilford
Cumberbatch, L.M. — English High S. for Girls, Constantinople
Gardner, F. *e.* — Private tuition
Gray, M.B. — High S. for Girls, Ashford
Husband, Q. — Exmouth H., Hastings
James, D.A. *e.* — Arlington H., Newport
[1]Goodwin, E.H. — County Girls' S., Carmarthen
Phillips-Jones, M.V. — Preswylfe High S., Cardiff
[1]Beynon, E.M. — Private tuition
Cook, D.E. — West Heath S., Southbourne-on-Sea
Cox, G.E. — Dunmarklyn, Weston-s.-Mare
[1]Gardner, H.M.E. — Merchant Taylors' Girls' S., Great Crosby
King, E.I. — Laton H., Hastings
Peace, A.E. — Royal Masonic Inst., Clapham Junction
Buckle, D.G. *mu.* — Eastrop H., East Pallant, Chichester
Harty, W.M. — English High S. for Girls, Constantinople
[1]Rees, E.E.G. — Tutorial S., New Quay, Cardigan
Unwin, K.M. — Elvaston, Tulse Hill, S.W.
[1]Webb, F.M. — Private tuition
Davies, M.R.E. *f.* — Private tuition
[1]Jones, M. — Penuwch Cl. School, Llangeitho
Stevens, C.C. — St Martin's, Cliftonville, Margate
Williams, E.M. — Pontypridd Girls' Inter. S.
[1]Williams, A. — Private tuition
[1]Cook, A. — Private tuition
Evans, Q. — Lulworth H., Caerleon
[1]Henderson, V.E. *e.* — Private tuition
Wright, B.S. *e.* — Private tuition
[1]Edwards, B. — Private tuition
Feltham, E.M. — Private tuition
Jones, F. — Mill Street Higher Standard S., Pontypridd
[1]Jones, K.P. — Private tuition
Purkiss, H.M. — Roanoke Coll. S., Palmer's Green
[1]Roberts, L.G. — Gram. and Coll. S., Carnarvon
Sanders, D.A. — Laton H., Hastings
Topalian, A. — English High S. for Girls, Constantinople
[1]Foot, H.J. — Private tuition
[1]Nicholas, M. — Private tuition
[1]Pardoe, E.M. — Private tuition
Helman, E.L. — Radway H., Sidmouth
Sherman, D.M. — Wellington Coll., Wellington Square, Hastings
Watt, M.E.B. *f.* — Queen's Road S., Coventry
Ridgeway, E. — Argyle H., Sunderland
[1]Mills, L.M. — Private tuition
Turner, V. — Elvaston, Tulse Hill, S.W.
[1]Morgan, D. — Private tuition
[1]Pengelly, B.H. — Private tuition
Seamons, M.M. — Roanoke Coll. S., Palmer's Green
Papazian, M. *f.* — English High S. for Girls, Constantinople
Rizzo, E.E. — English High S. for Girls, Constantinople
Whiting, E.E. — Ryde H., Ripley
Benzie, A.R. *e.* — Private tuition
[1]Morgan, E.J. — Private tuition
Roberts, L.A. — Old College S., Carmarthen
Young, H.S. — West Heath S., Southbourne-on-Sea
Evans, E.M. *f.* — Private tuition
[1]Nicholls, A.E. — Private tuition
Woodhouse, P. — Upper Mount, Southsea
Ayers, D.M. — N. Middlesex High S. for Girls, Tottenham
[1]Davies, S.H. — Private tuition
Lees, D.L. — St. Martin's, Cliftonville, Margate
[1]Curtis, A.M. — High S., Twickenham Green
[1]Stephens, E.A. — Private tuition
Barbey, D.A. — Licensed Victuallers' S., Upper Kennington Lane, S.E.
Crowther, H. — Ravensworth Scarborough
[1]Jordan, S.F.A. — Technical S., Cheltenham
[1]Llewelyn, W. — Private tuition

GIRLS, 2ND CLASS, PASS—*Continued.*

[1]Jones, E.A. Tutorial S., New Quay, Cardigan
Smith, H.B. Private tuition
Wells, V.M. St. Martin's, Cliftonville, Margate
[1]Williams, J.V. Private tuition
French, M.E. Stamford House, Edgbaston
Lidiard, E.S. Streatham Modern Coll.
[1]Dillworth, M.B. Private tuition
Shaw, F.C. Private tuition
[1]Goodrum, M.E. Private tuition
Souter, P.M. Highfield S., Croydon
Percival, K. Elvaston, Tulse Hill, S.W.
Paterson, J.A. Private tuition
Lyons, M. Conv. of the Holy Rosary, Cannock
Evans, C. Old College S., Carmarthen
Hamilton-Harris, D.C. High S., Townstal House, Dartmouth
Talbot, E.A. Private S., St. Paul's, Standishgate, Wigan
Farmer, R.D. Private tuition
Rickard, A.M. North Park S., Albaston, Tavistock

THIRD CLASS.

Honours Division.

Stambollian, M. *s.al.f.* English High S. for Girls, Constantinople
Bebb, J.M. *s.e.a.f.* Ladies' Coll., Hereford
Corey, E. *e.a.al.* Ladies' Coll., Hereford
Blackwood, H.M. *s.e.al.* Crouch End High S. & Coll., Hornsey
Gigot, M.R. *s.e.h.g.f.* Conv. of the Sisters of Nevers, Withdean, Brighton
Hancock, E.M. *e.a.al.* Crouch End High S. & Coll., Hornsey
Turvey, D.W. *e.a.* Crouch End High S. & Coll., Hornsey
Kelly, M. *e.a.d.* Rock Hill S., Chulmleigh
Reeves, S.I. *e.a.* Sunnyland S. for Girls, Henley-on-Thames
Charnaud, M.M. *a.* English High S. for Girls, Constantinople
Vincenzetti, T. Notre Dame de France, Leicester Place, W.C.
Buisseret, G. *s.h.* St. Helen's Coll., Seven Kings
Kelekian, L.A. *f.* English High S. for Girls, Constantinople
Stark, L.G. *a.al.* Crouch End High S. & Coll., Hornsey
Williamson, C.M. *e.a.al.* Orton Coll., Coleshill

THIRD CLASS.

Pass Division.

[2]Tarrant, C.A. *do.* Streatham Modern Coll.
[2]Dawson, C.C. *e.do.* Belle Vue, Herne Bay
[2]Rowlands, B. Private tuition
Hancock, T.J.B. Rock Hill S., Chulmleigh
[2]Spink, E.M. *f.* St. Leonards, Ealing
Buckle, M.M. Eastrop H., East Pallant, Chichester
Cowle, E.D. Rock Hill S., Chulmleigh
Overton, S.M. *a.* Hopefield H., Norwich
Castelli, V.G. English High S. for Girls, Constantinople
Edwards, M. *a.* Pengwern Coll., Cheltenham
Little, F.E. Ainstable, Armathwaite
March, J. *s.* Hainault High S., Ilford
[2]Lawrence, F.J. Private tuition
Jeffries, E.A. *a.* Alexandra Park Coll., N.
Bryan, K.N. *s.* Beaconsfield, Weston-s.-Mare
[2]Dermguertchian, A. English High S. for Girls, Constantinople
Richardson, E.K. *e.d.* Eastrop H., East Pallant, Chichester
Browne, W. *a.* Hopefield H., Norwich
[2]Caldecott, O. Ladies' Coll., Nantwich
[2]Gould, J.E. Ladies' Coll., Nantwich
Moate, C.A. St. Helen's Coll., Seven Kings
Aubert, M.E. *s.h.a.* Vauxhall S., St. Helier, Jersey
Barnes, M.S. Elm H., Ealing
[2]Cotton, J.L. Private tuition
Jago, M.H. *e.* Crouch End High S. & Coll., Hornsey
Prout, E. Roanoke Coll. S., Palmer's Green
Boston, C.A.N. *d.* Elvaston, Tulse Hill, S.W.
Nash, V.K. *e.d.* Granville Coll., West Croydon
Raymont, I.E. Rock Hill S., Chulmleigh
Wiley, R.L. *d.* Pemberton Coll., Upper Holloway
Barber, M.M. *a.* Hopefield H., Norwich
Tyson, D.R. *e.f.* Belle Vue, Herne Bay
[2]Cranstone, C.R. Private tuition
Feinberg, C.L. *e.* Bourne H., Eastbourne
Brown, K.R. St. Helen's Coll, Seven Kings
Hawkes, K.G. *e.* Girls' High S., Park St., Taunton
[2]Hochberg, E. Private tuition
[2]Hulme, F.K. Conv. of the Holy Rosary, Cannock
Ireland, W.A. English High S. for Girls, Constantinople
Luxton, V.L. *e.a.* St. Mary's Coll., Barnes
Frith, M.I. *e.* Temple S., Aylesbury
Hammond, D.M. *a.* Crouch End High S. and Coll., Hornsey
Harrison, V. *e.d.* Plymouth Grove High S., Manchester
Honey, V.F. Elvaston, Tulse Hill, S.W.
[2]Owen, A.R. Old College S., Carmarthen
[2]Downham, I.L. Laton H., Hastings
Frankowski, H. *f.ge.* Private tuition
Venables, M.K. *e.d.* Pengwern Coll., Cheltenham
Williamson, E.C. *a.d.* Hainault High S., Ilford
Blackwood, M.M. *s.e.* Crouch End High S. & Coll., Hornsey
Dorn, V.M.E. *d.* Private tuition
Guthrie, F. *f.* Private tuition
Scott, D.M. *e.d.* Eastrop H., East Pallant, Chichester
Syvret, V.M. *s.a.f.* Six Roads S., St. Lawrence, Jersey
Codling, G.M. *a.* Alexandra Park Coll., N.
[2]Foster, E. Ousegate S., Selby
Frank, S.A.F. Brookville, Filey
Kühne, J. *f.* Cornwallis High S., Hastings
Lewis, M.I. *e.* Raymont, Shortlands
Oxford, D. *d.* Granville Coll., West Croydon
Brown, K.H. *d.* Licensed Victuallers' S., Upper Kennington Lane, S.E.
Cameron, V. St. Helen's Coll., Seven Kings
Carter, R. *e.a.* The Limes, Buckhurst Hill
[2]Edgecombe, J.M. Weirfield S. for Girls, Taunton
[2]Darling, K.J. St. Helen's, Streatham
Fortescue, V.E. *s.a.* St. Helen's Coll., Seven Kings
Lund, E.F.E. *s.* Private tuition
Scheuck, T.F. Collingwood Coll., Lee
Smith, C.D. Ousegate S., Selby
Allen, A.S. Pencraig S., Newport
Dearing, N.J. *s.* Claughton Coll., Romford
Hunt, E.F. Lulworth H., Caerleon
Noel, L.L. *f.* Les Landes H., Faldouet, Jersey
Berry, G.I. Rock Hill S., Chulmleigh
Ellis, B. Temple S., Aylesbury
Hocken, M.M. *a.* Finnart, Newquay, Cornwall
Policar, G. English High S. for Girls, Constantinople
Smith, D.E. Licensed Victuallers' S., Upper Kennington Lane, S.E.
Brown, A.A. Hainault High S., Ilford
Hingston, F.K. Belle Vue, Herne Bay
[2]Moody, C.E.A. Ryde H., Ripley
Parker, H.V. Penketh School
Gresty, M. Penketh School
[2]Taylor, G.M. Mill Street Higher Standard S., Pontypridd
Wegerhoff, D.L.A. *f.* English High S., for Girls, Constantinople
Young, D. *e.a.* Stockwell Orphanage Girls' S., Clapham Rd.
Bates, K.M. Ladies' Coll, Hereford
[2]Davies-Jones, D. Arlington H., Newport
Harborow, M.R. *a.* St. Helen's, Streatham
Woodman, M. *s.* Licensed Victuallers' S., Upper Kennington Lane, S.E.
Adamson, V.C. Belle Vue, Herne Bay
Douch, A. English High S. for Girls, Constantinople
Parker, S.M.T. *f.* Upper Mount, Southsea
[2]Angel, F. English High S. for Girls, Constantinople
Harty, R.M. English High S. for Girls, Constantinople
Manbach, M.H.A. English High S. for Girls, Constantinople
Downs, E. *a.* Private S., Mechanics' Inst., Thornton
[2]Ham, W.E. Roanoke Coll. S., Palmer's Green
Morgan, D.M. *s.* Wellington College, Wellington Square, Hastings
Underwood, M. St. Helen's, Streatham
Walker, L.M. *h.* Cornwallis High S., Hastings
[2]Arthurs, E.L. Private tuition
Buttery, V. *a.* Ousegate S., Selby
Evans, I.E. 34 Douglas Road, Herne Bay
Hawson, M. *a.* Ravensworth, Scarborough
Le Masurier, D.V. Les Landes H., Faldouet, Jersey
Woods, A.D. *s.* Eastrop H., East Pallant, Chichester
[2]Barton, E. Private S., St. Paul's, Standishgate, Wigan
Farrer, W. Crouch End High S. & Coll., Hornsey
Firkin, K.A. Highfield S., Croydon
Hathaway, M.W. *a.* Wynnstay High S., West Ealing
Heslop, C.M. *s.* Private tuition
Cavey, M.A. Wellington Coll., Wellington Square, Hastings
Dobbs, M.H. St. Mary's Coll., Barnes
Ellwood, R. Belle Vue, Herne Bay
Harper, A.F. Temple S., Aylesbury
Mackie, B.P. *e.a.* Walton Coll., Wandsworth
Tredgold, E.E. Ivy H., Hanwell
Turner, O.I. Belle Vue, Herne Bay
Abbott, N. Royal School for the Deaf, Old Trafford
Wass, M. Ravensworth, Scarborough
Whiteley, M.D. West View, Cheadle Hulme
Wilson, M.B. Belle Vue, Herne Bay
Eckersley, E. Penketh School
[2]Perkins, P.C. Ryde H., Ripley
Richford, B.M. Private tuition
Snook, M.P. Steyne Girls' High S., Worthing
Crake, O. Chiswick Girls' S.
Gouldsmith, M.L. Alexandra Coll., Shirley
Hall, F.L. Brookville, Filey
Kutchukian, S.H. *f.* English High S. for Girls, Constantinople
Negus, H.A. Hainault High S., Ilford
Atkinson, M.I. Alexandra Park Coll., N.
Beck, M.I. Licensed Victuallers' S., Upper Kennington Lane, S.E.
Bedford, E.M. Rock Hill S., Chulmleigh
Burdett, J. High S., Twickenham Green
Cluer, P.M.V. Priory Coll., Hornsey
Cotching, D.D. Elm H., Ealing
Hunt, L. Alexandra Coll., Shirley
McMinn, I.B.A. London Coll., Goodmayes
Quartly, M.A. Temple S., Aylesbury
Eekford, B.E. Roanoke Coll. S., Palmer's Green
Walker, M.A. Granville Coll., West Croydon
Anderson, M.C. Fairfield H., Dereham
Carr, E. Lime Tree H., York
Christopherson, E.F. Fouldon H., Hackney
Cowle, M.E. Rock Hill S., Chulmleigh
Deeley, E. Temple S., Aylesbury
Djabir, S. English High S. for Girls, Constantinople
Engelbrecht, D.M. Ursuline Conv., Kingsland
Gaine, E.C. *e.* St. Helen's, Streatham
Molloy, Martha Notre Dame de France, Leicester Place, W.C.
Plescoff, S. English High S. for Girls, Constantinople
Browne, G. Hopefield H., Norwich
Stiffin, D.E. Roanoke Coll. S., Palmer's Green
Young, M.P. Highfield Coll., Bispham
Pittock, G.H. St. Martin's, Cliftonville, Margate
Ward, N. Lime Tree H., York
Chambers, D.G.M. Claughton Coll., Romford
Findlay, M.McD. Pencraig S., Newport
King, P.K. Pencraig S., Newport
Taylor, M.B. Granville Coll., West Croydon
Elworthy, C.M.T. Rock Hill S., Chulmleigh
Restall, D.M. Roanoke Coll. S., Palmer's Green
Williamson, K. Alexandra Coll., Shirley
[2]Barton, M.G. Private tuition
Blake, G.E. Roanoke Coll. S., Palmer's Green
Bunting, M.C. Steyne Girls' High S., Worthing
Lawrie, A. Ousegate S., Selby
Newell, M. Roanoke Coll. S., Palmer's Green
Smith, E.G. Lulworth H., Caerleon
Wormald, D. Girls' High S., Rothwell
Yearsley, M.C. Springfield S., Stockport
Bradley, S. Ravensworth, Scarborough
Hogbin, A.M. Belle Vue, Herne Bay
Molloy, Mary Notre Dame de France, Leicester Place, W.C.
Rogers, O.B.S. St. Mary's Coll., Barnes
Bristow, C.L. Alexandra Coll., Shirley
Keilor, F. Notre Dame de France, Leicester Place, W.C.
Mummery, M. Wescott Road Council S., Wokingham
Prendergast, T.M. Ursuline Conv., Kingsland
[2]Williams, E. Private tuition
Burgen, M. Ursuline Conv., Kingsland
Chillman, G.E. Sunnyland S. for Girls, Henley-on-Thames
Gilmour, D.S. 100 Harlow Terrace, Harrogate
Stephenson, G. *f.* Upper Mount, Southsea
Turton, A.E.E. Steyne Girls' High S., Worthing
Seddon, I. Penketh School
Spencer, F.M. 1 Madeira Villas, Hayling Island
Tolcher, E. Vauxhall S., St. Helier, Jersey
Jane, A.M. North Park S., Albaston, Tavistock
Lee, H.M. Beulah Hill, Bridlington
Ostick, G. Lime Tree H., York
Scudamore, V. English High S. for Girls, Constantinople
Whyte, S.M. St. Helen's, Streatham
Austice, M.M. Weirfield S. for Girls, Taunton
Billinge, V.M. St. Helen's, Streatham
Dennis, T. Chiswick Girls' S.
[2]Concannon, W.M.C. Cusack's Coll., Finsbury Square, E.C.
Oakman, J. Ashurst Coll., Balham
Pratt, E.C. Tintern H., Honor Oak Park
Willson-Crosse, N. Felthorpe, Hampton-on-Thames
Manning, D.M. Girls' High S., Park St., Taunton
Snyder, E.O. Collingwood Coll., Lee
Nicholson, G.E. Fairfield H., Dereham
Jackson, C.E. Brownlow Coll., New Southgate
Macleod, D.M.E. Winwick, Grove Hill, S. Woodford
Beck, K.P. Winwick, Grove Hill, S. Woodford
Barber, H. Weirfield S. for Girls, Taunton
Beesley, M. Parkfield S., Westcliff-on-Sea
Walbourn, C.I.V. Ryde H., Ripley

LOWER FORMS EXAMINATION.—PASS LIST, CHRISTMAS, 1913.

BOYS.

Abbott, W.S. The Douglas S., Cheltenham
Alcock, C.E. Gram. S., Ongar
Alletson, R.W. Penketh School
Ambrose, W.J. Gram. S., Ongar
Anderson, S. Eton H., Southend-on-Sea
Andrews, B.O. Hove College
Ash, H.W. St. John's Coll., Brixton
Ashton, H.W. Richmond Hill S.
Aspinall, J, A.
Clifton Coll., North Shore, Blackpool
Atkinson, A.H. Grosvenor Coll., Carlisle
Baastad, A.T.T. Shoreham Gram. S.
Bailey, T. The Douglas S., Cheltenham
Baker, R.T. Godwin Coll., Margate
Baldwin, J.E. St. Dunstan's Coll., Margate
Balmanno, D. Godwin Coll., Margate
Bamford, A. Highbury Park S., N.
Bancroft, A.H. Froebel H., Devonport
Barker, C.C. Cliftonville Coll., Margate
Barnes, R.H. Kelvin Coll., Penarth
Barnett, V.H.
The Modern S., Streatham Common
Barrow, V. Leighton Hall S., Carnforth
Barry, G.J. Licensed Victuallers' S.,
Upper Kennington Lane, S.E.
Barry, W.J. Licensed Victuallers' S.,
Upper Kennington Lane, S.E.
Barsted, W.P. Priory Coll., Hornsey
Barter, L.E. Eton H., Southend-on-Sea
Barter, V.A. Licensed Victuallers' S.,
Upper Kennington Lane, S.E.
Bartlett, C. Private tuition
Baskerville, O.G.
Cambridge H., Cliftonville, Margate
Batchelor, W.D. The Moderu S., Minehead
Batty, N.E. Leighton Hall S., Carnforth
Beale, R.K. Seaford College
Bealy-Smith, L.P. Monkton H., Streatham
Bean, G.E. St. Catherine's Coll., Richmond
Beckett, H.W. Hove College
Bell, R. Argyle H., Sunderland
Bennett, R.C.F. Eton H., Southend-on-Sea
Benson, B.H. Taunton H., Brighton
Bentley, J.
Cedar Road S., Thorpe Hamlet, Norwich
Billings, A.E. Shoreham Gram. S.
Bird, R.C. Oxenford H., St. Lawrence, Jersey
Blair, L.L. St. Catherine's Coll., Richmond
Block, C.W.
The Modern S., Streatham Common
Bodger, S. Barton S., Wisbech
Boobbyer, V.H. Broadgate S., Nottingham
Bray, B.G. Barton S., Wisbech
Bray, L.A. Barton S., Wisbech
Brett, R.T. Ryde H., Ripley
Brewster, L.G. Manor H., Clapham
Bridges, O.L. Colebrook H., Bogner
Bright, J.A.
St. Thomas' High S., Woodford Green
Brockelbank, R. Shoreham Gram. S.
Brown, A. Gram. S., Ongar
Brown, C.K. Priory Coll., Hornsey
Brown, L.C. Cliftonville Coll., Margate
Brown, P.P. St. Aubyn's, Woodford Green
Brown, R.S. St. John's Coll., Brixton
Brown, W.R. St. Aubyn's, Woodford Green
Browning, D. Ryde H., Ripley
Bubb, B.G. Temple Coll., East Sheen
Buck, J.W. Oxenford H., St. Lawrence, Jersey
Buesnel, R.G.
The Crown S., St. Martin's, Jersey
Bulman, A.R. Grosvenor Coll., Carlisle
Burt, A.G. The Modern S., Minehead
Campion, S.J. Herne Bay Coll.
Cape, L.I. Arlington Park Coll., Chiswick
Carter, H.C. Newquay Coll., Cornwall
Caunter, W.B. Taunton H., Brighton
Cavey, D.D. West End S., St. Helier
Chambers, B. Ion H., East Molesey
Chambers, C.A. Gravesend Modern S.
Channon, R.F. Licensed Victuallers' S.,
Upper Kennington Lane, S.E.
Chapman, A.G.W. Licensed Victuallers' S.,
Upper Kennington Lane, S.E.
Chapman, W.R. Barton S., Wisbech
Chew, T.T. Melbourne H., York
Clare, P.A. Wallingbrook S., Chulmleigh
Clare R.A. Norwich High S. for Boys
Clark, F.W. Eton H., Southend-on-Sea
Clarke, J.E. Cliftonville Coll., Margate
Cole, L. Steyne S., Worthing
Collier, T.R. Seaford College
Cooke, E.B. Wilmslow College
Cooke, T.M. Manor H., Clapham
Cooper, A.H.
Worcester Coll., Westcliff-on-Sea
Cooper, C.J. Lark Hill S., Timperley
Cooper, G.A. Taunton H., Brighton
Cooper, H.A. Norwich High S. for Boys
Cory, H.W. Godwin Coll., Margate
Coulthard, W.F.H. 15 Queen Street, Aspatria
Coutanche L.
Oxenford H., St. Lawrence, Jersey
Cowell, E.S. Licensed Victuallers' S.,
Upper Kennington Lane, S.E.
Cranwell, J.W.
St. Thomas' High S., Woodford Green
Crick, J.E. Licensed Victuallers' S.,
Upper Kennington Lane, S.E.
Crips, A.W. Highbury Park S., N.
Crook, J. Steyne S., Worthing
Crosthwaite, J.A. Grosvenor Coll., Carlisle
Croughton, A.W. Cliftonville Coll., Margate
Curbishley, E.A. Wilmslow College
Curtis, C.E. Herne Bay Coll.
Curtis, E.C. Godwin Coll., Margate
Dallain, A. Oxenford H., St. Lawrence, Jersey
Daniel, E.C. Seaford College
Daniel, J.L. Seaford College
Davidson, H. Wallingbrook S., Chulmleigh
Davidson, L.R. Anerley College
Davies, A.H. Froebel H., Devonport
Davies, E.A.J. Herne Bay Coll.
Davies, E.G.
The Moderu S., Streatham Common
Davies, E.R. High S., Brentwood
Davies, T.B. Manor H., Clapham
Davis, G. Cherwell H., Bexhill-on-Sea
Dawson, P.C.R. Private tuition
Day, L.C. Cliftonville Coll., Margate
DeFleury, R. Steyne S., Worthing
De Fraine, J.G. Gravesend Modern S.
de Lance Holmes, R.A.
Littleton H., Knowle, Bristol
Dickens, F. Leighton Hall S., Carnforth
Dicketts, L.W. Norwich High S. for Boys
Ditchfield, E. Argyle H., Sunderland
Dixon, P.R. Barton S., Wisbech
Dodd, W.H.
The Modern S., Streatham Common
Dodridge, D.P. Private tuition
Doubleday, E.J. Barton S., Wisbech
Dovell, J.L. The Modern S., Minehead
Doyle, C.W. Manor H., Clapham
Drew, J.H. Manor H., Clapham
Du Feu, A.J.
The Crown S., St. Martin's, Jersey
Dunlop, T. Richmond Lodge S., Torquay
Dunn, E.G.R. Monkton H., Streatham
Dunn, R.R. Argyle H., Sunderland
Du Val, F.C.
Jersey Moderu S., Colomberie, Jersey
Duxbury, P.T. New Coll. Harrogate
Dyer, I.H. The Modern S., Minehead
Edwards, F. Cherwell H., Bexhill-on-Sea
Ellison, J.E. 15 Hawthorn Rd., Moreton
Emeleus, H.J. St. Leonards Coll. S.
Emery, H.E.L. Kelvin Coll., Penarth.
Emmerson, R. Shoreham Gram. S.,
Evans, A. Streatham Gram. S.
Facy, S.T. Godwin Coll., Margate
Farish, W.W. St. Aubyn's, Woodford Green
Farrington, W.D.
Hill Croft High S., Stamford Hill
Few, W. Highbury Park S., N.
Fie, A.C. Eton H., Southend-on-Sea
Firth, S.N. New Coll., Harrogate
Fiske, T. Richmond Hill S.
Fletcher, E.M. Cowfold Gram. S.
Foot, R.M. "Linton," Southend-on-Sea
Forrest, W.W. Private tuition
Foster, L. Steyne S., Worthing
Fowler, C.H. Cowfold Gram. S.
Fox, W. The College, Bridlington
Freeman, C.L. Priory Coll, Hornsey
Fuller, J.H. Highbury Park S., N.
Furniss, L.P. Temple Coll., East Sheen
Gates-Warren, E.L.
Clifton Coll., North Shore, Blackpool.
Gaudion, L.
Oxenford H., St. Lawrence, Jersey
Gibbons, E.J. Richmond Hill S.
Gill, M.O. Herne Bay Coll.
Gill, N.G.B. Seaford College
Godfrey, E.A. Taunton H., Brighton
Godwin, E.W. "Linton," Southend-on-Sea
Goodale, A.V. Tankerton Coll., Whitstable
Gooding, N.R. Wallingbrook S., Chulmleigh
Goodson, B.C. Cliftonville Coll., Margate
Goosey, T.S. Manor H., Clapham.
Gough, H.L. Shoreham Gram. S.
Gould, J.D. Licensed Victuallers' S.,
Upper Kennington Lane, S.E.
Gowdy, G.L. Argyle H., Sunderland
Gray, A.S. Steyne S., Worthing
Gray, D.J.M. Shoreham Gram. S.
Green, D.W. Shoreham Gram. S.
Green, J.H. Shoreham Gram. S.
Greenfield, W.A.
Worcester Coll., Westcliff-on-Sea
Greenwell, G. Bailey S., Durham
Gregory, C.J. Godwin Coll., Margate
Grieve, T.K. Herne Bay Coll.
Grieves, H.D. Eton H., Southend-on-Sea
Grimond, F.I. Taunton H., Brighton
Hall, C.R. Ryde H., Ripley
Hallett, F.W.W. Herne Bay Coll.
Hamel, S.T. Arlington Park Coll., Chiswick
Hamersley, B.P. Wilmslow College
Hancock, A.M. Wembley House, Wembley
Handley, F.V.
Clifton Coll., North Shore, Blackpool
Handley, H.B. Barton S., Wisbech
Hardy, T.E. Gram. S., Ongar
Harris, A. Streatham Gram. S.
Harris, L.G. St. Aubyn's, Woodford Green
Harrison, D.J.
Southleigh S., South Shore, Blackpool
Harrison, E.V. Ryde H., Ripley
Hartel, C.G. Shoreham Gram. S.
Harvey, H.
Jersey Modern S., Colomberie, Jersey
Hawkins, R.H. Herne Bay Coll.
Hawkins, S.H. Richmond Hill S.
Haynes, H.
Jersey Modern S., Colomberie, Jersey
Heathcote, A. Steyne S., Worthing
Heaver, F.J. Gravesend Modern S.
Hedger, L.W. Wembley House, Wembley
Henderson, H.C. Taunton H., Brighton
Henning, A.F. Godwin Coll., Margate
Henry, H. Gram. S., Ongar
Herrick, S.F. Richmond Hill S.
Hews, D.A. Shoreham Gram. S.
Hicks, L.G. Shoreham Gram. S.
Hill, G.P.S. Froebel H., Devonport
Holbrook, R.P. Shoreham Gram. S.
Holmes, A.W. Southdown Coll., Eastbourne
Holmes, G.S. Gravesend Modern S.
Holness, H.R. Godwin Coll., Margate
Honey, S.
Plympton Hr. Prep. S., Mutley, Plymouth
Houghton, A.H.D. Norwich High S. for Boys
Howes, P.V. Norwich High S. for Boys
Hubbard, P.C. "Linton," Southend-on-Sea
Huelin, K.J.
Harleston H., St. Lawrence, Jersey
Huhne, G.H. St. Leonards Coll. S.
Ireland, L.T. Barton S., Wisbech
Isaacs, B.R. Argyle H., Sunderland
Jacques, C.R.F. Licensed Victuallers' S.,
Upper Kennington Lane, S.E.
Jarnet, R.C.
Harleston H., St. Lawrence, Jersey
Jenkins, D.L. Kelvin Coll., Penarth
John, H.C. Kelvin Coll., Penarth
Johnson, A.A. Penketh School
Johnson, E.L.
Greystones S. for Boys, Scarborough
Johnson, F.A. Penketh School
Johnson, F.W. Grosvenor Coll., Carlisle
Johnson, G. "Linton," Southend-on-Sea
Jones, A.S. Eton H., Southend-on-Sea
Jones, F.L.
Clifton Coll., North Shore, Blackpool
Jordan, A.E. Boys' High S., Erdington
Keasley, W.C. Richmond Hill S.
Kemshead, C.A. Priory Coll., Hornsey
King, S. Ryde H., Ripley
Kinman, A.H. Southend-on-Sea Gram. S.
Knight, S.H. Streatham Gram. S.
Kreutzberger, E.E.G. Shoreham Gram. S.
Lane, C.E. Priory Coll., Hornsey
Langlois, H.G.
Harleston H., St. Lawrence, Jersey
Larbalestier, L.
Jersey Modern S., Colomberie, Jersey
Large, A.L. Streatham Gram. S.
Latham, D.J. St. Aubyn's, Woodford Green
Lay, D.S. Gram. S., Ongar
Le Brun, S.C.
Oxenford H., St. Lawrence, Jersey
Lees, D.C. St. Aubyn's, Woodford Green
Le Gresley, P.C.
Harleston H., St. Lawrence, Jersey
Le Héron, A.F.
Oxenford H., St. Lawrence, Jersey
Le Rnez, E.J.
Harleston H., St. Lawrence, Jersey
Le Vesconte, Clifford.
Oxenford H., St. Lawrence, Jersey
Le Vesconte, Cyril.
Oxenford H., St. Lawrence, Jersey
Levi, L.C. St. John's Coll., Brixton
Lidgey, R.L. Richmond Hill S.
Lincoln, N. New Coll., Harrogate
Linfield, F.S. Seaford College
Lockwood, H. New Coll., Harrogate
Long, F.R. Taunton H., Brighton
Lucas, C.C. Lancaster Coll., W. Norwood
Lutz, A. 34 Uxbridge Rd., West Ealing
Macdonald, D. St. John's Coll., Brixton
Macdonald, N. St. John's Coll., Brixton
Mackay, W.J.
Worcester Coll., Westcliff-on-Sea
Mann, A.C.
King's Coll., Wandsworth Common
Mann, G.E.
The Modern S., Streatham Common
Marchant, S.S. Richmond Hill S.
Marshall, J Wilmslow College
Marshall, J.E.
"Winwick," Grove Hill, S. Woodford
Maryan, E. Oxenford H., St. Lawrence, Jersey
Mason, T.H. Gram. S., Ongar
Maunder, S.L.
The College, Weston-super-Mare
Maxwell, R.S. Manor H., Clapham
McGuinness, S Grosvenor Coll., Carlisle
McKay, W.D. Ryde H., Ripley
Mead, D.C. Gram. S. Ongar
Medwin, P.F. St. John's Coll., Brixton
Mellish, W.C. St. Catherine's Coll., Richmond
Merrie, W.E.
The College, Weston-super-Mare
Merrison, C.A.W. Norwich High S. for Boys
Miller, J.G. Richmond Hill S.
Money, J. Shoreham Gram. S.
Mordey, K. Argyle H., Sunderland
Morgan, J.P.
Greystones S. for Boys, Scarborough
Morris, C.E. Broadgate S., Nottingham
Morris, J. Lark Hill S., Timperley
Morse, A.P. Taunton H., Brighton
Muirhead, R.G. Leighton Hall S., Carnforth
Muncaster, J. Grosvenor Coll., Carlisle
Neeves, L.D. Colebrook H., Bogner
Newton, H.A.
The College, Weston-Super-Mare
Norman, W.F.
Oxenford H., St. Lawerence, Jersey
Oakes, H.E. Gram. S., Ongar
Oakley, A.R. Seaford College
Oliver, W.A.D. Bailey S., Durham
Olsen, R.S. Kelvin Coll., Penarth
Osborne, J.L. Norwich High S. for Boys
Osborne, R.H. Hove College
Outten, M.C. High S., Brentwood
Paine, W.R. Richmond Hill S.
Palmer, E.D. St. Leonards Coll. S.
Palmer, J. 34 Uxbridge Rd., West Ealing
Palmer, L.T. High S., Brentwood
Palmer, P.N.H., Norwich High S. for Boys
Parsons, R. The College, Weston-Super-Mare
Parker, W.A. Godwin Coll., Margate
Payton, G.H. Richmond Lodge S., Torquay
Pearce, A.W. Gram. S., Ongar
Pearn, E.J.J. Froebel H., Devonport
Pearson, J.G St. Aubyn's, Woodford Green
Pearson, J.H. Victoria Park S., Manchester
Pellant, K. Shoreham Gram. S.
Penfold, H.E.
Brownlow Coll., New Southgate
Pepin, S. Oxenford H., St. Lawrence, Jersey
Perks, T.A. The College, Weston-Super-Mare
Phillips, A.F.St.J.
"Linton," Southend-on-Sea
Phillips, A.H. The Modern S., Minehead
Picot, R. Jersey Modern S., Colomberie, Jersey
Pitt, W. Monkton H., Streatham
Plummer, C.J.
The Modern S., Streatham Common
Pocock, S.J. Licensed Victuallers' S.,
Upper Kennington Lane, S.E.
Pope, H.L. Lulworth H., Caerleon
Postlewaite, G.K. New Coll., Harrogate
Pratt, W.F. Licensed Victuallers' S.,
Upper Kennington Lane, S.E.
Price, L.V. Worcester Coll., Westcliff-on-Sea
Purchas, T. Newquay Coll., Cornwall
Purchase, R.P. Chichester Gram. S.
Pullen, C.F. Priory Coll., Hornsey
Purse, W.A. Shoreham Gram. S.
Purves, W.S. Richmond Lodge S., Torquay
Radford, L.S. Broadgate S., Nottingham
Raven, A.G. Broadgate S., Nottingham
Ray, A.J. St. Leonards Coll. S.
Read, N.A. Highbury Park S., N.
Remon, E.T.
Harleston H., St. Lawrence, Jersey
Renad, E. Herne Bay Coll.
Rennie, D.B. St. John's Coll., Brixton
Reuter, G.J.L. Ryde H., Ripley
Richardson, R.M. Chichester Gram. S.
Riddlestorffer, G.W.N. Hove College
Robb, T.McK. Norwich High S. for Boys

BOYS, LOWER FORMS—*Continued.*

Roche, A.G.
St. Thomas's High S., Woodford Green
Roche, P.J.
St. Thomas's High S., Woodford Green
Rose, L.A. Streatham Gram. S.
Ross, C.
Jersey Modern S., Colomberie, Jersey
Rowles, D.L. Herne Bay Coll.
Royffe, E.A. Manor H., Clapham
Russell, G.J. Gravesend Modern S.
Saffery, J.T. Maida Vale S., W.
Saul, G.C. Cliftonville Coll., Margate
Saunders, A.F. Gram. S., Ongar
Saunders, D.K. South Norwood Coll.
Savile, B.B. "Linton," Southend-on-Sea
Schönhut, A.
Ruthin Coll., Eckington, Sheffield
Scott-Hall, F. Private tuition
Scruton, S.H. Hove College
Secat, C.V. Oxenford H., St. Lawrence, Jersey
Seymour, S.F. Seaford College
Seymour, V. Southend-on-Sea Gram. S.
Sharp, R.L. New Coll., Harrogate
Sharpe, W.F.
Kingsholme S., Weston-super-Mare
Shaw, E.Z. Monkton H., Streatham
Shirvell, J.
Jersey Modern S., Colomberie, Jersey
Sibson, I.R. Grosvenor Coll., Carlisle
Sims, C.O. Licensed Victuallers' S., Upper Kennington Lane, S.E.
Skelton, H.W.
Harleston H., St. Lawrence, Jersey
Slatter, E. Gram. S., Ongar
Smith, E.D. Herne Bay Coll.
Smith, J.H. Gravesend Modern S.
Smith, J.L.S. Godwin Coll., Margate
Smithers, V.J. Ryde H., Ripley
Soane, G.V.
Kingsholme S., Weston-super-Mare
Solman, S.G. Heathfield H., Crouch Hill
Soutter, C.H. Heathfield H., Crouch Hill
Stanislas, G.C. Herne Bay Coll.
Stapleton, E.W. Taunton H., Brighton
Stavordale, K. Ion H., East Molesey
Steeds, A.D.
Kingsholme S., Weston-super-Mare
Steel, O. Shoreham Gram. S.
Stephen, D.M. Newquay Coll., Cornwall
Stewart, D.E. Cliftonville Coll., Margate
Streader, A.E. Shoreham Gram. S.
Tasewell, E.R.
The School, Wellington Road, Taunton
Tavender, H.M.
The School, Wellington Road, Taunton
Taylor, D.T. Hove College
Taylor, E. Leighton Hall S., Carnforth
Taylor, O.E.
The Modern S., Streatham Common
Temple, H.F. St. Peter's S., Blackheath
Thomas, N.
Kingsholme S., Weston-super-Mare
Thomas, W.E. Kelvin Coll., Penarth
Thompson, H. Priory Coll., Hornsey
Thompson, W.C. Herne Bay Coll.
Thomson, D.W. Southend-on-Sea Gram. S.
Tiley, R.C. Gravesend Modern S.
Timberley, C.D. Private tuition
Tims, C.F. Manor H., Clapham
Todman, J.J. Dorset H., Sevenoaks
Tourgis, E. Oxenford H., St. Lawrence, Jersey
Townsend, A.E. Licensed Victuallers' S., Upper Kennington Lane, S.E.
Truelove, J.W. Gravesend Modern S.
Turner, F.H. Gravesend Modern S.
Tyler, W.G. Hill Croft High S., Stamford Hill
Tyson, T.L. Wilmslow College
Vaudin, J.P.
Oxenford H., St. Lawrence, Jersey
Veasey, A.C. Shoreham Gram. S.
Vergette, G.W. Barton S., Wisbech
Vigot, J.A. Springside H., Gorey, Jersey
Viner, R.B. Worcester Coll., Westcliffe-on-Sea
Wagstaffe, N. Richmond Hill S.
Warburton, T.A.R.
Clifton Coll., North Shore, Blackpool
Ward, L.H. Brownlow Coll., New Southgate
Watson, S.L.I. Hove College
Webb, R.C. Seaford College
Welch, A. Herne Bay Coll.
Wells, J.S. Licensed Victuallers' S., Upper Kennington Lane, S.E.
Westcott, H.M. Argyle H., Sunderland
Weston, C.H. Ryde H., Ripley
Weston, F.R. Manor H., Clapham
Weston, H.J. Licensed Victuallers' S., Upper Kennington Lane, S.E.
Wheelock, H.F. The Modern S., Minehead
Wikeley, T. Herne Bay Coll.
Willetts, J.E. Southend-on-Sea Gram. S.
Williams, C. Steyne S., Worthing
Williams, D.C. Cherwell H., Bexhill-on-Sea
Williams, R.C. Cliftonville Coll., Margate
Willmott, W.
St. Thomas' High S., Woodford Green
Wilson, C.J. Gravesend Modern S.
Wilson, G.R. New Coll., Harrogate
Wood, R.St.D. St. Leonards Coll. S.
Woodgate, S.N.
St. Catherines Coll., Richmond
Woodwell, B. Steyne S., Worthing
Wootton, C.M. Licensed Victuallers' S., Upper Kennington Lane, S.E.
Wright, N.G. Eton H., Southend-on-Sea
Wright, W.J. Vauxhall S., St. Helier

GIRLS.

Abbott, H.J. Gunnerside S., Plymouth
Adams, D.E. Temple S., Aylesbury
Agnew, D.M. Brentwood, Southport
Angiopoulo, A.
English High S. for Girls, Constantinople
Ansell, D.L. Alexandra Coll., Shirley
Armitage, D.D.
Wintersdorp, Birkdale Ladies' Coll., Birkdale
Arzoglon, J.
English High S. for Girls, Constantinople
Audrie, M. Chiswick Girls S.
Austen, D.E. Bourne H., Eastbourne
Axford, E.K. Ashurst Coll., Balham
Backhouse, M.M.D.
Southleigh S., South Shore, Blackpool
Barbey, M.A. Licensed Victuallers' S., Upper Kennington Lane, S.E.
Barker, I.M. Gunnerside S., Plymouth
Barnes, F.E. Licensed Victuallers' S., Upper Kennington Lane, S.E.
Barsby, G. Coll. S., Hawkhurst
Bayley, M.E. "Sunnyland," S. for Girls, Henley-on-Thames
Bedford, E.D. Hillside Modern S., Wealdstone
Bell, M.M. Glenarm Coll., Ilford
Bell, N.E. Eversley, Southport
Benbow, L.M. Castle Hall S., Northampton
Bentall, M.V. Eversley, Southport
Bentley, M.
Cedar Rd. S., Thorpe Hamlet, Norwich
Binnie, M.C. Private tuition
Blackburn, N.J.
Queen's S., Cliftonville, Margate
Bolus, M.A. St. Mildred's Coll., Worthing
Boonham, E.F. Laurel H., Wilnecote
Bradford, I.E. "Sunnyland," S. for Girls, Henley-on-Thames
Bradley, I.E.
The Bonhams, St. Leonards-on-Sea
Bramwell, D.M.A.
Tintern House, Honor Oak Park
Bremner, E.M. Alexandra Park Coll., N.
Brett, S.K. Ryde H., Ripley
Brewster, Q Bourne H., Eastbourne
Bricknell, L.S. Ryde H., Ripley
Bridgland, G.B.
Hemdean H., Caversham, Reading
Britten, E.V.M. Somerville H., Northampton
Brookes, H.M. St. Helen's Coll., Seven Kings
Brotherton, G.E.
Crouch End High S. and Coll., Hornsey
Brown, J.M. Girtonville Coll., Aintree
Brown, M.I. Alexandra Coll., Shirley
Brown, W.M.
Moreton, Mannamead, Plymouth
Buckley, D. Brentwood, Southport
Bull, S.C. Moreton, Mannamead, Plymouth
Burrowes, D.
St. Michael's Avenue S., Northampton
Bush, D. Alexandra Park Coll., N.
Butcher, E.M.
Hemdean H., Caversham, Reading
Butler, E.O. Queen's S., Cliftonville, Margate
Cambrook, M.C. Clark's High S., Holloway
Carey, C.E. St. Monica's, Herne Bay
Cauldwell, E.M.
Crouch End High S. and Coll., Hornsey
Chapman, F.A. Licensed Victuallers' S., Upper Kennington Lane, S.E.
Clark, M.N. The School House, Park Parade, Whitley Bay
Clarke, A. High S., Twickenham Green
Clarke, D.M. Castle Hall S., Northampton
Clarke, P.M. Clark's High S., Holloway
Cobley, D.J. Licensed Victuallers' S., Upper Kennington Lane, S.E.
Cobley, M.V. Licensed Victuallers' S., Upper Kennington Lane, S.E.
Collins, M.P. Coll. S., Hawkhurst
Conelly, M.
English High S. for Girls, Constantinople
Cooke, A.C. Priory Coll., Hornsey
Cooper, E.M. St. Mildred's Coll., Worthing
Cousin, P.M.
Wintersdorp, Birkdale Ladies Coll., Birkdale
Cowell, O.M. Licensed Victuallers' S., Upper Keunington Lane, S.E.
Cox, B.K. Margate College for Girls
Crowne, V.M.B. Alexandra Park Coll., N.
Currie, M. London Coll., Goodmayes
Danon, N.
English High S. for Girls, Constantinople
Darke, D. Normanton, Brighton
Davidson, E.
Hemdean H., Caversham, Reading
Davies, E.D. Lulworth H., Caerleon
Dawes, M.M. London Coll., Goodmayes
Deardeu, D.M, Newcastle H., Lewes
de Bobinsky, R. Private tuition
Dedebal, A
English High S. for Girls, Constantinople
Dell, N. Chiswick Girls' S.
Dingley. M. Highfield Coll., Bispham
Donnelly, V.
St. Michael's Avenue S., Northampton
Dorling, N.C. Park H., Southwick, Sunderland
Douch, K.M.
English High S. for Girls, Constantinople
Dowswell, N Newcastle H., Lewes
Druitt, D.M.
Southend Coll. for Girls, Westcliff-on-Sea
Duckham, M.C. 15 Queen Street, Aspatria
Dunk, M.L.
Crouch End High S. and Coll., Hornsey
Eaton, L.A. St. Martin's, Cliftonville, Margate
Edwards, D Mazenod Coll., Kilburn
Edwards, K.D. Oxford S., Bexhill-on-Sea
Edwards, M.C. Normanton, Brighton
Elliott, E.M. Girls' High S., Rothwell
Elvidge, I.D.
Finsbury Park High S., Adolphus Rd., N.
Escolme, E.A. Penketh School
Evans, G.M E. Weirfield S. for Girls, Taunton
Fall, M.L. Castle Hall S., Northampton
Farquharson, K.B. Collingwood Coll., Lee
Filley, V.E. Queen's S., Cliftonville, Margate
Firth, V.M.St.J. St. Monica's, Herne Bay
Forsyth, E.A. The School House, Park Parade, Whitley Bay
Fraser, B. Mazenod Coll, Kilburn
Fraser, M.L. St. Mildred's Coll., Worthing
Frith, I.S. Temple S., Aylesbury
Garlick, P.L. Clark's High S., Holloway
Gaud, D.E. Gunnerside S., Plymouth
Gay, M.B. Priory Coll., Hornsey
George, I.G.
Southend Coll. for Girls, Westcliff-on-Sea
Giles, I.F.A.R. High S., Waltham Cross
Glasgow, E.W. Wintersdorp, Birkdale Ladies' Coll., Birkdale
Golby, C.D.
Crouch End High S. and Coll., Hornsey
Goldie, E.M.O.
Southend Coll. for Girls, Westcliff-on-Sea
Gordon, S. Alexandra Park Coll., N.
Greenfield, I.L.
Southend Coll. for Girls, Westcliff-on-Sea
Gregory, R. Scarisbrick Coll., Birkdale
Griffiths, J. Penketh School
Grindrod, E.
Plymouth Grove High S., Manchester
Hadley, F.M. 20 Portland Road, Edgbaston
Hall, D.E. The School House, Park Parade, Whitley Bay
Hammett, K.E.
Moreton, Mannamead, Plymouth
Handley, M. Glenarm Coll., Ilford
Handley, M.M. Wembley House, Wembley
Handscomb, D.E.
Crouch End High S. and Coll., Hornsey
Hankins, N. Clark's High S., Holloway
Hare, M.L. Highams Park S., Hale End
Harle, E.M. The School House, Park Parade, Whitley Bay
Harrison, D.E. Licensed Victuallers' S., Upper Kennington Lane, S.E.
Hartuoll, G.L.
Crouch End High S. and Coll., Hornsey
Herne, M. High S., Twickenham Green
Hill, P. Gunnerside S., Plymouth
Hoblyn, L.M. Gunnerside S., Plymouth
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1914.

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BLOOMSBURY SQUARE, LONDON, W.C.

LECTURES FOR TEACHERS

ON THE

SCIENCE, ART, AND HISTORY OF EDUCATION.

EDUCATIONAL PSYCHOLOGY.

To be delivered by Professor J. ADAMS, M.A., B.Sc., LL.D., F.C.P., Professor of Education in the University of London.

The First Course of Lectures (Forty-second Annual Series) will commence on Thursday, February 5, at 7 p.m.

The aim of this course is to meet the needs of teachers who wish to improve their acquaintance with the psychological principles that underlie their profession, whether they have any examination in view or not. The lecturer will treat his subject in such a way as to fit in with the requirements of the College in connexion with its examinations for the Associateship, the Licentiateship, and the Fellowship. Guidance will be given for private study and reading, and problems will be set for such students as desire practice of this kind. Every opportunity will be taken of making practical applications of psychological principles to the ordinary work of the classroom.

SYLLABUS.

I. (*Feb.* 5.) *The Self.*—Nature of consciousness, general and individual: insulation of individual consciousness: resulting difficulties: polarity: the ego and the non-ego: the subjective and the objective: advantage of educator as external influence: psychological data of education: nature and scope of psychology: kinds of psychology — descriptive, empirical, rational, experimental: cross classification: genetic psychology and its special value for the teacher: Münsterberg's criticism.

II. (*Feb.* 12.) *The Habitual.*—General meaning of habit: its fundamental place in education: "causing the conscious to pass into the unconscious": the upper and lower brain: the growing point: association a *general* principle of organic development, though the term is often limited to ideas: relation to habit: convergent and divergent association: manipulation of habit: habit-making and habit-breaking: the intellectual side of habit introduces the problem of power resulting from knowledge: turning fact into faculty.

III. (*Feb.* 19.) *The Perceptual.*—The senses general and special: contribution sensation makes to knowledge: classification of pupils according to the "preferred sense": the training of the senses: distinction between sensation and perception: the mind's share in perception: meaning and limits of observation: relation to inference: the observation zone: the inference zone: the inference point: the gaping point: distinction between perception and apperception: the "here and now" element in perception.

IV. (*Feb.* 26.) *Imagination.*—Relation of imagination to perception on the one hand and to memory on the other: usual neglect of the mere image-forming aspect, and resulting emphasis on the æsthetic aspect: consequent suspicion: "the busy faculty": the so-called "kinds" of imagination differentiated by the number and kinds of conditions that limit its exercise: importance of clearly imaged ends in practical life: function of the imagination in geography, history, geometry, and other branches of the ordinary school curriculum: imagination as a drag on thought: day-dreaming.

V. (*March* 5.) *The Conceptual.*—Distinction between the gathering and the elaborating of psychological material: conception is elaborative: the static and dynamic views of ideas: ideas as forces: mental content: change of activity of a given idea, temporary and permament: co-presentation and interplay of ideas: hierarchy of ideas: the fixed idea: marginal and focal ideas: apperception masses and soul-building: fusion, complication, and arrest: mediate and immediate recall: the possibility of the subconscious influence of ideas.

VI. (*March* 12.) *Modes of Expression.*—Relation between impression and expression: physical reactions of the organism: various theories of the origin of speech: possibility of thought without speech: words and their meaning: connotation and denotation: transitive and intransitive words: definition: laws of classification: difference between *having* an idea, *realizing* an idea, and *expressing* an idea: shorthand thinking: symbolism: gestures as a means of expression: self-expression as a means and as an end in itself: self-realization as the aim of education.

VII. (*March* 19.) *The Intellect.*—Distinction between the mind and the soul: former over-estimation of the intellect present-day tendency to depreciate it: distinction between understanding and reason: the logical and the psychological standpoint: meaning of *thinking*: its formal and its practical aspects: the purposive element: relation of means to ends: the teacher's power to influence the thinking of his pupils: the laws of thought as thought, and the fundamental necessity of thinking: the criterion of thought: possibility of self-deception in thinking.

VIII. (*April* 30.) *Memory.*—Memory as a natural endowment: brute memory: not limited to mental processes: personal identity: possibility of improving the natural memory: relation between retention and recall: Bergson's two kinds of memory: use of the memory: predominance of purpose in manipulating the memory: need for selection of material: management of mental content: mnemonics and the educational application: learning by rote: pictorial and rational memory: memory in relation to reality: connexion between memory and imagination: occasional confusion between them.

IX. (*May* 7.) *Attention and Interest.*—Attention as a general innate quality: index of educability: essentially a prehensile process: has an active and a passive aspect: quarrels about the classification of the different kinds of attention: question centres round the relation of the will to attention: interest the pleasure-pain tone that accompanies attention: interaction between attention and interest: interest as means and as end: the mechanism of attention: its vascular, respiratory, and muscular accompaniments: potency of attitude: rhythm of attention: concentration and diffusion beats.

X. (*May* 14.) *The Emotions.*—Divergent views of the nature and functions of the emotions: the disturbance theory and the consequent depreciation of the emotions: the pleasure-pain tone that accompanies the activities of the soul: the McDougall view: the driving power of spiritual life: relation to ideas: expression of the emotions and the various theories connected with it: the Lange-James theory and its practical applications to school work: control of the emotions: the relation between feeling and desire; the element of activity.

XI. (*May* 21.) *Temperament and Type.*—Nature of temperament: its place as the physical basis of character: permanency of temperament: Lotze's view, and its educational application: possibility of deliberate change of temperament: physical attributes of the temperaments; relation to personality: meaning of type: contrast with average: classification of pupils by types, and its dangers: place of the living child as the teacher's real subject: ideal pupil as standard: deflection from this standard in two directions according as we consider intellect or conduct.

XII. (*May* 28.) *Will and Character.*—Relation of will to knowledge, on the one hand, and feeling on the other: place of desire in development of will: the meaning and function of the motive: fallacy of "the strongest motive": resolution of the dualism implied in the process of making up one's mind: metaphysical excrescences obscuring the problem of the freedom of the will: the evolution of the will: the memory of the will: the possibility of training the will: the time element, and its importance in all discussions of the teacher's responsibility in character-training.

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I beg to remain, Gentlemen,
Yours truly,
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September 16th, 1913.

Dear Sir,

I must thank you very much for the lessons sent me for the last A.C.P. examination. I feel that I have done well and can attribute this to the lessons I got from you. They showed me already how to condense and summarize my answers in the examination room. Had I not been a pupil of your class, I feel that I would not have done well at the examination. I am now awaiting results. My examination number is "45." You will be able to see my results when results are published. I believe I have done well in Algebra, Geometry, and Arithmetic. I shall always strongly recommend your classes.

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THE

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AND

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THE COLLEGE OF PRECEPTORS.

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GENERAL MEETING.

The Half-yearly General meeting of the Members of the Corporation will be held at the College, Bloomsbury Square, W.C., on Saturday, the 28th of March, 1914, at 3.30 p.m.

MEMBERS' MEETING.

A Meeting of Members of the College will be held at the College on Wednesday, the **18th of March**, at 8 p.m., when The Rev. Dr. DAVID, Head Master of Rugby School, will deliver a lecture on "The Teaching of English." The Lecture will be followed by a discussion.

LECTURES FOR TEACHERS.

The First Course of Lectures (Forty-Second Annual Series), by Prof. J. ADAMS, M.A., B.Sc., LL.D., F.C.P., on "Educational Psychology," commenced on Thursday, the 5th of February, at 7 p.m.

The aim of this course is to meet the needs of teachers who wish to improve their acquaintance with the psychological principles that underlie their profession, whether they have any examination in view or not. The lecturer will treat his subject in such a way as to fit in with the requirements of the College in connexion with its examinations for the Associateship, the Licentiateship, and the Fellowship. Guidance will be given for private study and reading, and problems will be set for such students as desire practice of this kind. Every opportunity will be taken of making practical applications of psychological principles to the ordinary work of the classroom.

For Syllabus, see page 157.

EXAMINATIONS.

Diplomas. — The Summer Examination of Teachers for the Diplomas of the College will commence on the 31st of August, 1914.

Practical Examination for Certificates of Ability to Teach.—The next Practical Examination will be held in February, 1914.

Examination of Foreign Teachers for Certificates of Proficiency in English.—These Examinations may be held at any date.

Certificate Examinations. — The Midsummer Examination for Certificates will commence on the 29th of June, 1914.

Lower Forms Examinations.—The Midsummer Examination will commence on the 29th of June, 1914.

Professional Preliminary Examinations.—These Examinations are held in March and September. The Autumn Examination in 1914 will commence on the 8th of September.

Inspection and Examination of Schools.—Inspectors and Examiners are appointed by the College for the Inspection and Examination of Public and Private Schools.

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CONTENTS.

	Page
Leader: Herefordshire and the Empire	119
Notes	120
The King's Speech—The Need of Money—The Private Schools Inquiry—A New Name Wanted—Sex Hygiene—The Handicap of Small Schools—The Boy Scouts—Freedom in Education—National or Local?—Registration and the College of Preceptors—Ambidexterity—The Kinema—Mr. Pease and Parents—Peeps at Parliament—Belief in Education—Fees in lieu of Notice—A Prize Competition.	
Summary of the Month	123
Current Events	124
The College of Preceptors:—	
Teachers' Diploma Examination, Christmas, 1913: Pass List	127
Certificate Examination, Christmas, 1913: Colonial and Foreign Class Lists	131
The Lighter Side of Pedagogy	133
Poetry: February 1914	134
Romance as a Factor in Development. By Mrs. Scott	134
Prize Competition	136
Meeting of the Council of the College of Preceptors	136
Correspondence	137
Ambidextrous Training. By Dr. H. Macnaughton-Jones	139
The Kinematographic Appeal to the Eye in Geography. By Prof. L. W. Lyde	141
The Progress of Women's Education. By Constance L. Maynard	142
How far is Co-Education Desirable?—Questionnaire	144
The Vice-Chancellor of Leeds University on Co-Education	146
Reviews	146
Life and its Beginnings (Dr. Helen Webb); From Girlhood to Womanhood (Dr. Elizabeth Sloan Chesser); The Three Gifts of Life (Nellie M. Smith); The Montessori Principles and Practice (Culverwell); Vivès on Education (Foster Watson); Children's Play and its Place in Education (Wood); L'Année Pédagogique, 1912 (Cellérier and Dugas); English Education and Dr. Montessori (Cecil Grant); The Purpose of Education (St. George Lane Fox Pitt); The Marking System in Theory and Practice (Finkelstein); Thresholds of Science—Mathematics (Laisant); A School Arithmetic (Clement Jones and Wykes); A Textbook of Elementary Statics (Heath); Ancient Greece (Cotterill).	
General Notices	151
Publications Received	156
Mathematics	159

The Educational Times.

HEREFORDSHIRE AND THE EMPIRE.

At the time when the newspapers say that there can be no additional grants for education because the needs of the Navy absorb all available moneys comes the strike of teachers in the public elementary schools of the County of Hereford. The coincidence is significant. It brings home the fact that education, no less than naval warfare, requires money. Great principles are often fought out on battlefields of comparative unimportance. So it is in this case. It is matter of moment enough that teachers in Herefordshire should be underpaid or that children should miss their education, but wider issues are involved. We need ships to defend the Empire and protect commerce; we need education no less. Both involve labour and therefore expense. The nation is rich enough to pay for both. Over naval expenditure the country is generous; over expenditure on education it is parsimonious.

The agricultural rate-payer in Herefordshire considers himself overburdened and demands more help from the Treasury. For many years past the Local Education Authorities have pressed again and again upon the Board of Education their claims for increased grants. It has been shown, as a result of careful investigation and calculation, that the expenditure on the part of the localities is constantly rising without any proportionate increase in State aid. To all these representations the Treasury has turned a deaf ear. It has been left for Herefordshire to bring matters to a head. Yet Herefordshire is a county by no means deserving of special sympathy in this respect. While in other areas the percentage of the total cost of education that is raised from the rates has shown a constant upward tendency throughout England as a whole, yet in Herefordshire the tendency has been in the reverse direction. The *Times*, in giving the percentages, remarks that they are "figures which suggest that the Herefordshire rate-payer is not in a position to complain of an increasing burden." Local Authorities would naturally be inclined to stand by one another, but we cannot think that the action of Herefordshire will gain much support among them. One, indeed, Abertillery, has passed a resolution sympathizing with the teachers in their "struggle for a living wage."

The National Union of Teachers have not entered upon this course of action without fully counting the cost. For many years they have tried persuasion and argument in order to induce the Education Committee of the County to adopt a reasonable scale. They failed entirely. Mr. Alderman Corner, interviewed by the *Times*, said that he did not intend to submit to any interference from the teachers' union, and that a scale of salaries had been demanded, "impertinently," in his opinion. "What next!" he continues: "I say that outside interference is not required by the Committee, as we are quite competent to manage our own business." This is an attitude on the part of the paymaster that is no longer tenable. The action of the paymaster is equally "the business" of the person paid, and also of the person affected by the work. The payment of teachers does not concern the Education Committee alone; it concerns the teachers, the parents, and the children. The Herefordshire Committee is but one minor cog in the wheels of Empire, and must work in harmony with the whole. The temporary dislocation has been of service; schools must not be closed because ships are wanted.

In the result the teachers will win. The National Union of Teachers has a fund of £50,000 to draw upon, and is able to put aside £20,000 annually for this purpose. All the teachers, members of the Union, who have resigned are guaranteed full salaries for five years; uncertificated teachers are promised salaries for three months. There is no need to exaggerate the injury to the children. The mental upset is unfortunate; but a holiday of a month or two, if it comes to that, will do no great harm. If the Education Committee is unable to fulfil its duty under the Education Acts, the Board of Education will have to open the schools and pay the necessary sala-

ries. But it is not certain that the poverty of the county rate-payer is at the bottom of the trouble: for it is said that higher salaries are being offered to "blacklegs" to tempt them to enter the schools. It is rather the old-fashioned attitude of the man with the purse who can purchase labour, and who claims that therefore he can dictate conditions. Such an attitude is no longer possible in the complexity of modern civilization.

The salaries of all teachers are insufficient, in elementary schools no less than in secondary. The nation must make up its mind to pay more, and a greater proportion of the money will come from the tax-payer and not from the rate-payer. The teachers of Herefordshire have raised the standard of revolt, neither an easy nor a pleasant thing to do; but they have given an object lesson from which the nation cannot but profit. For years the Local Authorities have been put off with fair words, and recently the claims of the navy have been used as an excuse for inaction. The crisis has come, and the country must realize that it is just as suicidal to starve the schools as it is to cut down the naval estimates.

Since the above was written it has been announced that, owing to pressure from the Board of Education, the Sub-Committee of the Herefordshire Education Committee have agreed to recommend a scale of salaries which is understood to be acceptable to the National Union of Teachers.

NOTES.

The King's Speech.

The announcement in the King's Speech in reference to education has come as a surprise, but not as an unpleasant surprise. The exact words are: "Measures will be presented . . . to give effect to the proposals, which were announced last Session, for the development of a national system of education." Latterly the political prophets had said that no large educational measure would be introduced, but that an attempt would be made to deal with the grievance of Nonconformists in single-school areas. It was also freely said that the requirements of the Navy were such that no money would be left for education. There is a stormy and fully occupied Session in prospect, and it will not be surprising if education is again shelved. But it is so far to the good that the promised "national system" is kept prominently to the front. Lord Haldane aroused much real enthusiasm last year. His speeches have produced a wide-spread feeling that a closer organization must be adopted and more money spent.

The Need of Money.

In reply to a question, Mr. Asquith said that "proposals are under consideration for readjusting the share of the cost borne by rates and taxes respectively." Indeed, money is the chief and one might say the only need. For money means labour; more teachers, and suitably paid teachers, are needed. To say that some additional millions are wanted for education is merely to say that we want a well qualified body of contented men and women to carry on a work of primary importance to the well-being of the State. There is no need for a complicated Act of Parliament. The Board of Education will know how to spend the money to the best advantage when it is granted. The Board are in communication with all the Local Authorities and with associations of teachers. They know the needs; they have the expert knowledge. Their desire for development on sound lines is checked only by the unwillingness of the Treasury. There is no public spending department of the Government that is more open to detailed criticism than the Board of Education. That is the safeguard, from the point of view of the nation, that makes it reasonable to entrust moneys to the Board.

The Private Schools Inquiry.

Nearly a year ago a deputation wishing to lay before the Board of Education the claims of private schools were met by the statement from the Board that there was no official knowledge of such schools. It was thereupon resolved to remedy this condition of ignorance. The Private Schools Association and the College of Preceptors decided to make an inquiry and to lay the results before the Board. A circular was addressed to all private schools the addresses of which were known. We have it on the authority of Mr. Stanley Maxwell that in some cases replies were not received. This indicates that there are still proprietors of private schools so unobservant of the signs of the times as to think that they can stand aloof from a national movement. But we understand that a large amount of information has been received and has now been tabulated. The Committee that has the matter in charge is taking measures to lay the results of the inquiry before the Board in the manner that shall prove most effective.

A New Name Wanted.

The term "private school" is misleading and unfortunate. It merely signifies that the finance of the school is not under any public control. Anyone who carries on a so-called private school is doing work of public importance. The school, if it is a day school, affects the life of the locality: pupils, teachers, and parents are equally concerned; if it is a boarding school, the area of influence is widened but is the same in essence. The work done in a private school is known, commented on, approved or disapproved, by numerous critics. In no real sense is it private. It is not difficult to change a name. In this generation we have changed grammar school into secondary, and board school into council. A positive name, not a negative one, is wanted. A name that shall describe the quality of the school is better than one that merely denies a certain condition. A section of the public has attached an undesirable significance to the term; and because

some private schools are inefficient, there is a tendency to lump them all together as worthy of condemnation. Can any of our readers suggest a new name?

Sex Hygiene.

At a recent meeting of the Royal Commission on Venereal Diseases Dr. Helen Wilson said that the educationof the general public in matters of sex hygiene was of the highest importance. We entirely agree with this view, and we are arranging for the issue of a series of articles written by medical men and women under the general title of "Sane Sex Teaching." It is from the doctor and the scientist that we must expect that sound instruction which will enable us to view the subject in a healthy light. Dr. Wilson also went on to say that it would not be wise to introduce systematic instruction into elementary schools. With this we also agree. The recent disturbance in a Derbyshire village has demonstrated the danger. A changed attitude on the part of the public is needed. Such sane teaching is wanted as shall prevent curiosity developing into sex obsession, and shall lead to a proper care of the body. But this instruction must be given to young children in a simple and reverential way, otherwise it is best not given at all. At present it is not possible to give it by class teaching, though ultimately we are sure that the principle that right conduct depends on right knowledge will prevail.

The Handicap of Small Schools.

The attitude taken by the Education Committee of Herefordshire is on one point entirely unsound. It is, to state it briefly, that because the number of scholars in a school is small, therefore the teaching can be entrusted to less qualified teachers. The view is, of course, not confined to the Education Authority in Herefordshire. The other day an inspector reporting to an Education Committee aroused laughter by speaking in detail of a school with five scholars on the roll. The feeling was that so small a school hardly needed consideration. It is incidents like this which make us desiderate a national system of education. Under such a system rightly conceived the State would feel it a duty to give each child the best education possible, and not to inquire too closely into the cost. It is not logical that a child should suffer because it happens to live in a sparsely inhabited area. If we believe in the value of education we cannot reasonably say that children in small schools shall be less efficiently taught merely because their numbers are few.

The Boy Scouts.

The Boy Scouts have become so much a part of our consciousness that it is almost strange to recall that the organization is only six years old. The movement "caught on" in a wonderful way because it supplied just those elements in the life of the boy that day schools find it difficult to arrange. Classroom work must of necessity be largely concerned with literary subjects and mental processes, though there is inherent in it the moral discipline involved in the attitude of teachers and taught towards the study. But there are manifold activities that find no outlet in the schoolroom. Tom Sawyer made the necessary provision for himself, but he was an exceptional boy, with plenty of space and willing helpers at his command. In a city Tom would, we fear, have become a hooligan. It is the qualities that make for hooliganism that Sir R. Baden-Powell's organization trains and restrains, helping the boys to lead happy and self-controlled lives. We hope the appeal issued by the Chief Scout for a sum of a quarter of a million will not fall on deaf ears. The movement has proved its value; it now needs to be put on a permanent footing, and for this money is wanted.

Freedom in Education.

The Archbishop of Canterbury sees little to fear in the proposals for fresh educational legislation. So far as he can understand the signs of the times and so far as he can correlate the speeches of Viscount Haldane, Mr. Pease, and other Ministers of State, he seems to see a constantly increasing sympathy with a wider elasticity in the whole educational system. He contrasted the elasticity and the varied modes now existing in schools with the rigidity of twenty-five to forty years ago. He found the outlook most hopeful. But he was also careful to point out that the freedom which permitted definite Church doctrine to be taught in the Church of England schools must also allow a similar liberty to other bodies; and he was especially anxious that in single-school areas possibilities of alternative teaching should be offered. We believe it to be quite true that the claims of Lord Bryce's Commission for liberty in education are becoming realized. The organization that is coming upon us is of an administrative character, and it will be successful just so far as its healthy limits are recognized.

National or Local?

Mr. J. L. Paton has been saying some hard things of the public schools and the older Universities. He reminds us again of the Englishman's dislike of learning foreign languages, and of his confirmed habit of cataloguing in English the goods he wishes to sell abroad. Mr. Paton finds the root of the trouble in the lack of prestige of the modern side in a public school. "What makes it difficult," he says, "for the modern side at a public school to acquire prestige is the fact that it has no regular and normal connexion with Oxford and Cambridge. Modern Language scholarships are so few compared with those given for Classics that the best brains naturally gravitate to the classical side." He makes the attack more precise by saying that "as long as they make Greek compulsory, both Oxford and Cambridge say in so many words, 'We do not want your modern side boy.'" The leaders do not lead," he adds, "and the local Universities are more truly national than Oxford and Cambridge." These stinging words cannot be without effect.

Registration and the College of Preceptors.

In the course of a lucid account of the various movements that have contributed to the formation of the Teachers' Register, the *Oxford Magazine* pays a tribute, well deserved, though sometimes ignored, to the College of Preceptors. We quote a short passage: "The first movement in the direction of the registration of Teachers was made by the College of Preceptors about 1860. This body, which had been founded in 1846 with the object of raising the character of the teaching profession, brought forward the question of registration as a means of effecting their purpose. In 1869—that is nine years after the College of Preceptors had made its first movement—Mr. Forster introduced a Bill into Parliament to provide for the registry of teachers." And, we may add, throughout the fifty years that elapsed before the project was realized the College has always kept this aim in view and has contributed its whole influence towards the final success. We understand that applications continue to pour in and that the Registration Council is still busy in laying down principles for the guidance of the Secretary.

Ambidexterity.

Some few months ago we printed an article on the subject of ambidexterity. The writer refrained from any dogmatic expression of opinion, but suggested reasons why it might prove advantageous to develop the power of writing and drawing with either hand or with both hands. He further asked readers who had opportunity of making observations on the matter to send the results of their observations for publication. No such communications were received. This month we print an article by Dr. H. Macnaughton-Jones, who has made a special study of the matter on its scientific side and who finds himself able to support the contentions of Mr. John Jackson, whose labours in this direction, carried on for many years, are familiar to our readers. There is, at present, a lack of overwhelming evidence to show that the use of the left hand in addition to the right brings about increased activity of the brain; but there is presumptive evidence that makes it worth while to prosecute investigation and to make experiment. It is by actual experiment alone that the matter can be finally decided.

The Kinema.

The kinema industry is a paying concern, and its press organization is carried on with vigour. There is a future for moving pictures in education; but we adhere to our previously expressed view that the kinema entertainment, as it exists at present, is unhealthy for children. The sunless rooms, the excitement, and the incomprehensibility of many of the films, detract from the healthiness of the amusement. The so-called educational films that we have seen indicate that the makers have studied neither school systems nor child psychology. In time, no doubt, we shall get more suitable films; and the marvellous discovery may prove as useful in certain school subjects as it has done in connexion with medicine and science. We print in another column an article from Prof. Lyde, in which he controverts the position that the teaching of history and geography is helped by pictorial illustrations.

Mr. Pease and Parents.

Mr. Pease seemed a little petulant in his reply to a deputation from the Trades Union Congress. In his opinion the resolutions were not of a practical character, and the deputation took no notice of the improvements the Board of Education had already introduced. As we have said elsewhere, we do not question the good will of the Board. They do what they can with their income. If Mr. Pease could control Mr. Lloyd George, that income would be larger and more work would be done. Mr. Pease blamed parents who do not show that belief in the value of education that would cause them to bring the necessary political pressure on the Government. "The Board," said Mr. Pease, "were trying to do their utmost to meet the educational needs of the country and to be as progressive as it was possible to be. It was the indifference of the parents to the wants of the children that was in the way. . . . The complaints of the deputation, instead of being directed to the Board of Education, ought to be directed to the parents of the children to make them realize the importance of a continuous system of education, and to the Local Authorities, who were the administrative bodies in this country."

Peeps at Parliament.

There is a charm about Mrs. Philip Snowden's oratory that would win over to her views the most case-hardened opponent. With characteristic modesty she took as the title of her talk at the College of Preceptors last month "Peeps at Parliament through a Woman's Eyes," explaining that at present women could do no more than peep. The "talk" was full of humour and shrewd criticism. The only serious charge to be brought against Parliament, in Mrs. Snowden's opinion, is that its natural and instinctive common sense is sometimes overridden by consideration for obsolete conventions and regulations. With regard to the character of members Mrs. Snowden reminded her audience that the responsibility lay with the constituencies which returned them. Mrs. Snowden certainly possesses eloquence of a high order. It is said that on one occasion, when she was speaking, the chairman was so moved that he rose and said: "Mrs. Philip Snowden is the best woman speaker I have ever heard, and I have heard men worse."

Belief in Education.

Lord Haldane has published in the March number of *Nash's* magazine a vigorous trumpet-call on the subject of education; and speaking in London a week ago, he was equally emphatic as to the needs of further educational provision. The Government, he tells us, have developed their plans,

and will find the money; but they must have behind them the backing of public opinion. At present there is no enthusiastic belief in the value of education that would enable the Government to propose the allocation of many additional millions to the education budget. This feeling of enthusiasm Lord Haldane is just the man to arouse. A year ago he did splendid work in calling attention to England's shortcomings and backwardness in educational matters. We hope he will continue the campaign that he has started. In the House of Commons on February 19, Mr. Asquith, influenced no doubt by the events in Herefordshire, foreshadowed a great measure of relief to the Local Authorities. Between 1901 and 1906 the cost of education in England and Wales increased from £12,000,000 to £24,000,000; since then it has increased by only £5,000,000.

Fees in lieu of Notice.

Mr. J. Bayley, Principal of Wellington College, Shropshire, sends us particulars of a case in which he sued a parent for fees in lieu of notice. Mr. Bailey gained his case: the matter is one of importance to all schools. The main fact brought out in the trial was that it is not enough to prove custom in the profession; but that a contract must be shown. Mr. Bayley was able to show, first, that he printed a definite statement in his prospectus to the effect that a term's notice in writing was required not later than the first day of the term at the close of which a pupil is to leave; and, secondly, that the parent had received a copy of this prospectus. The latter point was proved by the fact that the parent's name was entered in a special register containing the names of those who wrote for prospectuses. The Judge held that the secretary who was responsible for the entries in the register referred to gave her evidence very clearly, and he maintained that the parent had entered into a contract with Mr. Bayley, and gave judgment for the full term's fees plus ordinary costs.

A Prize Competition.

On page 136 will be found an announcement of a Prize Competition which we hope, with the co-operation of our readers, to carry on regularly each month. The prizes offered are not large in amount, partly because we think the attraction lies rather in the interest of the subject than in the value of the prize, and partly because the work demanded in each competition will not be heavy. Our intention is to propose from month to month interesting problems in educational matters, the solution of which will give scope for original thought.

Members of the College of Preceptors who are coming to London for the next General Meeting should apply to the Secretary for a list of hotels and boarding-houses where special terms are offered to members.

Dr. George Senter has been appointed head of the chemistry department of Birkbeck College in place of Dr. Alexander McKenzie, who has been appointed Professor of Chemistry at University College, Dundee.

SUMMARY OF THE MONTH.

Military Education in London.

A Conference on Military Education in London in connexion with the University was held recently at the University. The Vice-Chancellor presided. The Conference was convened by the Military Education Committee under the direction of the Senate given in the following resolution:—

That the Senate approve in principle of the establishment of central headquarters for the University Contingent of the Officers' Training Corps and for Military Education; that they are prepared to consider a provisional scheme on these lines; that the Military Education Committee be instructed to take steps for drawing up such scheme or schemes, including the convening of a Conference of persons and representatives of bodies interested; and that the Senate will be prepared at a later date to consider the advisability of authorizing an appeal for funds in aid of such scheme or schemes.

There was a large and representative attendance of military men and civilians. The following resolution was passed without dissent:—

That there is a need for a special institution in connexion with the University of London for systematic education in military subjects, particularly for officers of the Territorial Force and for students of the University.

Arrangements were made by the Conference for the appointment of representatives to form with persons appointed by the Military Education Committee a Committee to draw up a scheme for a special Institution in connexion with the University as proposed in the resolution.

The London Authority and the Kinema.

The Education Committee of the London County Council reports that it has considered the question of using the Council's school organization for the purpose of enabling head teachers to take parties of pupils to kinematograph entertainments. The Committee, however, is of opinion that it is not possible at present to give any considered judgment as to the educational value of the kinematograph as a medium of instruction, nor does it think that a stage of development has been reached which makes it desirable that the Council should officially recognize the movement by affording facilities in connexion with such entertainments. The Committee has accordingly decided that the school organization may not be used for the purpose referred to.

Public Schools and Military Training.

The Archbishop of York, in opening the new cricket pavilion at St. Peter's School, York, said he was glad to hear that the pavilion and the school playing fields would be a drill ground of the Officers' Training Corps, because he was quite certain that a public school without a training corps was without part of its proper equipment. Every boy ought to leave school not only able but ready to put the knowledge he had acquired of drill at the disposal of his country if necessary, and the Territorial Force had a right to expect from the public schools those who would officer that indispensable part of our national life.

Bristol Grammar School.

The new Lord Winterstoke Memorial Wing of the Bristol Grammar School was dedicated by the Bishop of Bristol and opened by Miss Janet Stancomb Wills. During his life Lord Winterstoke was a generous friend to the school, and to perpetuate his connexion with it Miss Stancomb Wills, one of his adopted daughters, decided to build the memorial wing at a cost of £10,000. The new buildings provide accommodation for 200 boys, so that the school can now accommodate 500. The leading features of the new wing are an art-room, elementary laboratory, advanced chemistry and physics laboratories, and six classrooms.

Increase of Salaries in Lancashire.

The estimates issued by the Lancashire County Council for the coming year show an increase of £14,000 for salaries in elementary schools. A further increase of £3,000 is required for the medical inspection of children. The estimates for higher education show an increase of over £3,000. This will necessitate a further advance over the normal rate of 2d. in the £. Last year the Local Government Board authorized a rate not exceeding 2¾d. for higher education. The new estimates need a rate of 3¼d., permission to raise which will have to be sought from the Board.

The Average Length of School Life.

At a meeting of the northern section of the Incorporated Association of Head Masters recently held in Manchester, Mr. C. W. Bailey, Head Master of the Holt School, Liverpool, lamented that the average life of a boy in an English secondary school was so short. From figures in his possession he estimated it at two years. In this connexion he spoke of the action of the Great Eastern Railway, which has caused such widespread discussion. Lord Claud Hamilton had felt himself obliged to go to America to fill a post for which he considered no English applicant suitable. America, said Mr. Bailey, believed in secondary education. The man selected by the Great Eastern Railway Company was at school until the age of nineteen and at college until twenty-three.

An Open-Air School in Leeds.

The Leeds Education Committee have adopted a resolution, passed by the Staffing and General Purposes Sub-Committee, that a scheme be prepared for an open-air school to accommodate a hundred children in a temporary building. The Committee also ask the Corporation to grant the use of a suitable site for the purpose. The scheme is of an experimental nature, says Alderman W. H. Clarke, the Chairman of the Education Committee, "but we shall probably ask the Corporation in due course to let us have a site near Roundhay Park. We shall pick those children who are not actually consumptive, but are unhealthy and show first signs of phthisis. At Roundhay Park the children would get all the sun and fresh air they possibly could, and be within a short distance of an excellent tram service."

London University and Legislation.

At the Meeting of Convocation of the University of London, Sir E. H. Busk stated that no attempt at legislation dealing with the University is to be expected during the present parliamentary session.

Tutorial Classes in London.

The report of the University of London Joint Committee for the Promotion of the Higher Education of Working People for the four years 1909-13 has just been issued. From this report can be seen the remarkable progress of the Tutorial Class movement, not only in London, but also throughout the country. The University took action some four or five years ago through the Board to promote the extension of University Teaching as the direct result of representations made to it by the Workers' Educational Association. The number of classes throughout the country has increased from two in 1907 to 144 in the present session, 1913-14. The students number considerably over three thousand, and every University and University College in England and Wales is responsible for one or more classes.

A Student's Appreciation.

A letter from a woman student, a factory worker, may be quoted in evidence of the appreciation with which the classes, referred to above, are regarded by the students:—"One of the chief advantages to me has been the gradual broadening of my outlook upon life. I have learned that the world contains many more things of interest than I once dreamed of; and the horizon of my world gradually receded more and more. The study in the class has shown me the importance of endeavouring to study questions from more than one point of view. I have learned that there are at least two sides to most questions. This critical and analytical habit of mind is, I believe, fostered by the method of study in the class. I much appreciate the fact that the teaching of the two tutors I have been under has been free from bias, even when the topics have been most controversial. The method of teaching certainly appears to me to be of great value in rendering the mind more receptive and discriminative. My great indebtedness to the Tutorial Class is the greater zest and joy and power of usefulness that it has brought into my life."

The Departmental Committee and the University of London.

The Departmental Committee on the University of London, appointed to recommend, after consultation with the bodies and persons concerned, the specific arrangements and provisions which may be immediately adopted in order that effect may be given to the Scheme of the Report of the Royal Commission on University Education in London have now resumed their sittings. The Committee have invited the observations of the Senate upon the proposals of the recent Royal Commission with regard to the admission of external students to the Examinations of the University for degrees, regard being had to the principles upon which the Report is based. The Committee would also be glad to receive not later than March 14 reasoned statements bearing upon these proposals from other bodies and persons concerned.

CURRENT EVENTS.

The particulars of the Prize Competition will be found on page 136.

On Wednesday, March 18, the Rev. A. A. David, Head Master of Rugby School, will give a lecture on the Teaching of English. The chair will be taken at 8 p.m. Members may bring one friend without payment, and may secure additional tickets at a cost of one shilling each.

There will be an Ordinary General Meeting of members of the College of Preceptors on Saturday, March 28, at 3.30 p.m.

The Teachers' Guild announces a continuance of the excellent Holiday Courses with which our readers are probably familiar. The Courses will be held in August, in France at Honfleur, in Germany at Lübeck, in Spain at Santander. Particulars may be had from the Secretary, 74 Gower Street, W.C.

The Parents' National Educational Union holds its eighteenth annual Conference at Darlington on March 9 to 12. A very sound program of lectures has been arranged.

Mr. John Oliver Wardrop, of the British Consular Service, has been appointed Educational Adviser to the City of London College. The salary is £800, rising by annual increments of £20 to £1,000.

At a meeting of the Hebdomadal Council at Oxford, Mr. Charles Buller Heberden, M.A., Hon. D.C.L., Principal of Brasenose, was appointed a Fellow of Winchester College, in the place of Dr. C. L. Shadwell, Provost of Oriel, resigned.

A meeting of the London Centre of the Teachers' Guild, at which Mr. Shradrach Hicks and Miss Helen Smith will speak on "Trade Schools," will be held in University Hall, Gordon Square, at 8 p.m., on March 18. Sir Robert Blair will be in the chair.

Miss Norah March is giving a course of Lectures on "Sex Education and Eugenic Training" in the Holborn Estates Girls' School, beginning on March 20. Particulars from Miss Grüner, 59 Cambridge Street, Hyde Park, W.

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The following are a few of the letters recently received from some of Clough's A.C.P. and L.C.P. successful Students at the ***January, 1914,*** *Diploma Examinations :—*

45 Brunswick Square,
Herne Bay.
January 22nd, 1914.

G. B. Clough, Esq.
Dear Sir,
I was delighted to hear this morning that I have passed in the Education group of Subjects, and as, last summer, I was successful in Latin, French, Botany, and Physiology, I am now entitled to the **L.C.P. Diploma.**
My sister, too (also Clough's student), has been successful in the Education papers of the A.C.P. Examination, which result she has just received, and as she passed in all the other subjects last summer with **Honours** in **History** and **Botany**, she is entitled to the **Associate Diploma.**
We both want to thank you for once again successfully coaching us, especially for the splendid notes we received each week.
Yours faithfully,
Mary A. Curling.

Naval Training School,
Elmham, Norfolk.
January 22nd, 1914.

G. B. Clough, Esq.
Dear Sir,
I am pleased to be able to inform you that I have just received the good news of my success in the L.C.P. Examination which **completes Diploma.**
I attribute my success wholly to the very thorough preparation afforded by your most excellent papers, particularly in Education.
Believe me,
Yours faithfully,
Arthur D. Bates.

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1 Trott Street,
Battersea, S.W.
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I have just heard the result of the A.C.P. Examination. I am delighted to say that I have passed in all the subjects taken this year, obtaining **Honours** in **Botany** (**Honours** in **Arithmetic** previously). In a few months I am hoping to begin working for L.L.A., when I shall rejoin your Classes.
Yours faithfully,
E. A. Burton.

38 Portland Road,
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Dear Mr. Clough,
I have received the result of the A.C.P. this morning. I have been successful in eight papers which I took, and am pleased to say I have obtained **Honours** in **English.** This is the second Examination, for which you have tutored me, in which I have gained **Distinction.**
I wish you to accept my sincere thanks for your splendid tuition. Your notes were ideal, and it was mainly through them that I obtained such a gratifying result. As you are aware I had not much time for study, and so relied on the notes mainly for my information. The English Paper, at the A.C.P. Examination in December, and your notes on this subject contained many things in common, especially the sections dealing with the constructional part of the language.
I hope still further to solicit your help, and trust that our relations will be attended by success in the future.
Thanking you for all past help.
I remain,
Yours faithfully,
John Ward.

Brixton, Plymouth.
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The result of the A.C.P. Examination came this afternoon. I am pleased to tell you that I have passed in History and Geography, and have gained **Honours** in **English.**
With thanks for all the help I have received.
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Yours very faithfully,
Winifred M. Hitchings.

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39 McDonald Street,
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Mr. G. B. Clough.
Dear Sir,
I am very glad to be able to inform you that I have been successful in passing the Education Section of the A.C.P. Examination. This, of course, qualifies me for the **Diploma of A.C.P.**
I can sincerely testify to the extreme "Thoroughness" of your tuition, and thank you very much for your valuable assistance and kindness.
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I am,
Respectfully yours,
John Ashurst.

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Again thanking you for your great help in the past.
I remain,
Yours faithfully,
B. A. Taylor.

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Thanking you again for your valuable tuition.
Yours truly,
S. Stott.

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Mr. G. B. Clough.
Dear Sir,
You will be pleased to hear that I have been successful in gaining the **Diploma of A.C.P.**
I found your preparation very helpful as indicating the lines along which to study. The notes and special papers were extremely useful.
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The total number of candidates examined was 400.

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October 2nd, 1913.

Dear Sir,

I have much pleasure in informing you that I have just received the result of the examination for Associate of the College of Preceptors, in which exam. I was successful in passing in all the subjects for which I sat. I have to thank you for your course of instruction, the best way of testifying to its excellence being to state that I have gained **Four Honours** out of the Six Subjects. Needless to say, I am delighted, both personally and with the knowledge that this result adds another to the list of Normal students who have been so successful. Several of my friends have intimated to me their intention of becoming Normal Students in preference to others.

I beg to remain, Gentlemen,
Yours truly,
F. H. Jones.

£20 and Normal Gold Medal awarded.

47 Melford Road, East Dulwich, London, S.E., and 110 Avondale Square, S.E.

MATHEMATICS—(*continued*).

ASSOCIATESHIP.

Aspden, J. A.
Babb, G. H.
Chandler, J. T.
Claxton, S. H.
Corsbie, D. S.
Davies, W. H.
Fox, H. E.
Gray, W.
Johnson, J. L.
Laurence, G. W. M.
Lawrence, F. W.
Leonard, W. J. S.
Lumb, W
MacSweeny, C.
Oliver, Miss E.
Page, J.
Phillips, R. P.
Probert, H.
Shenton, F. G.
Shepherd, W.
Southworth, J. P.
Tavard, H. E.
Taylor, H. C. G.
Walsh, T.
Watts, C. J.
Whetter, W. G.

LANGUAGES.

e = Higher English. *f* = French. *g* = German. *gr.* = Greek. *l.* = Latin. *s.* = Spanish.

FELLOWSHIP.

Blore, R. P. H. *e.(hon.)f.l.gr.*
Pearson, J. L. *f.l.*

LICENTIATESHIP.

Adamson, T. C. *e.l.*
Barker, A. W. *e.f.*
Dowse, H. *f.(hon.)l.*
Enright, T. J. *f.s.*
Johns, F. W. *e.f.*
Moody, W. E. *e.l.*
Sanderson, G. G. *e.f.*
Tungate, M. D. *e.f.*

ASSOCIATESHIP.

Brittain, Miss E. N. *f.*
Byrne, J. B. *s.*
Carroll, Miss E. M. *f.*
Condon, W. P. *s.*
Dickes, A. *g.*
Dyer, Miss G. B. *f.*
French, F. G. *f.*
Hague, Miss N. *f.*
Heeley, Miss M. *f.*
Holmes, E. J. *l.*
Latham, S. *f.*
Liverpool, J. B. *l.*
McWilliams, H. *f.*
Mollard, T. H. *f.*
Mulhall, J. K. *s.(hon.)*
Mulvany, E. P. *s.*
Nichols, A. W. *f.*
Pakenham, A. L. *s.*
Stubbs, A. J. *f.*
Woodward, Miss C. M. *f.*

SCIENCE.

a = Astronomy. *b* = Botany. *ch.* = Chemistry. *m.* = Mechanics. *p.* = Experimental Physics. *ph.* = Animal Physiology. *z* = Zoology.

LICENTIATESHIP.

Bates, A. D. *a.ph.*
Brown, W. *m.ch.*
Cahalan, Miss K. *ph.b.*
Douglas, R. R. *m.ph.*
Handover, A. C. P. *p.ph.(hon.)*
Hatton, A.E. *ph.b.*
Hughes, W. H. *ch.ph.*
Jones, H. W. *ch.ph.*
Kellaway, W. H. *m.ph.*
Martin, A. *a.ph.*
Perkins, W. E. *p.ch.*
Sanderson, G. G. *ph.z.*
Scott, T. *ph.b.*
Sloggett, A. L. *ph.b.*
Smith, A. L. *p.m.*
Symons, J. W. *a.ph.*
Wakefield, W. R. *p.m.*
Ware, Miss H. S. *ph.b.*
Wood, S. A. *m.ph.*
Worrall, C. H. *p.(hon.)m.*
Wright, J. E. *p.ph.*

ASSOCIATESHIP.

Berks, R. *ph.b.*
Branch, Miss E. M. *ph.b.*
Burton, Miss E. A. *ph.b.(hon.)*
Clark, P. L. *ph.(hon.)b.(hon.)*
Crampton, Miss E. *ph.b.*
D'Alton, Miss M. F. *ph.b.*
Desa, P. W. R *p.ch.(hon.)*
Harris, C. A. *ph.b.*
Hills, Miss L. M. *ph.b.*
Maddocks, W. A. *ph.b.*
Mann, C. *ch.ph.*
Perry, E. J. *ch.ph.*
Potts, E. *m.ph.*
Spurr, H. *ch.ph.*
Walpole, Miss A. C. *ph.b.*
Ward, J *ch.ph.*
Washington, F. J. *ph.b.*
Wicks, J. D. *ph.(hon.)b.*

LIST OF CANDIDATES TO WHOM DIPLOMAS WERE AWARDED.

FELLOWSHIP.

Blore, R. P. H.

LICENTIATESHIP.

Ayliffe, R. G.
Barker, J. W.
Barker, L. E.
Bates, A. D.
Chesterfield, H. W.
Coulthard, J. R.
Cresswell, Miss M.
Curling, Miss M. A.
Denton, E.
Dowse, H.
Gillard, P. C. S.
Hatton, A. E.
Hill, H. A.
Johnson, N. M.
Lewis, W. B.
Meyer, J. H.
Moody, W. E.
Pearce, H.
Scott, E. L.
Symons, J. W.
Taylor, B. A.
Wakefield, W. R.
Wood, S. A.
Worrall, C. H.

ASSOCIATESHIP.

Ashurst, J.
Babb, G. H.
Batting, G. F.
Baty, C.
Berks, R.
Betts, G.
Bodenham, A.
Bolton, A. A.
Brake, Miss L.
Broad, R. J.
Brown, D.
Burchell, Miss A. A.
Burton, Miss E. A.
Cadman, J. J.
Carr, F.
Chandler, J. T.
Cooper, L. W. T.
Crampton, Miss E.
Cruickshank, W.
Curling, Miss M.
Down, Miss V. T.
Fountain, H. J. J.
Fox, H. E.
Green, B. C.
Gregory, J. H.
Gregory, L.
Grudgings, W.
Gunton, T. P.
Gwilt, J.
Hague, Miss N.
Hall, Miss M. A.
Hardman, J.
Hawkins, H. H.
Heeley, Miss M.
Hills, Miss L. M.
Hodder, Miss M.
Holcombe, H. J.
Houslop, L. W, G.
Howells, Miss M.
Hubard, J. D.
Hurley, D.
Jackson, H.
Jackson, H. A.
Jenkins, Miss M. E.
Johnson, J. L.
Jones, F. H.
Jones, H. C.
Jones, L. G. E.
Lawrence, F. W.
Leake, G. E. A.
Maddocks, W. A.
McKibbin, W.
Moorhouse, W. E.
Morgan, Miss C. E.
Morgan, Miss G. A.
Murray, M.
Murray, P.
Owen, L. A.
Pass, Mrs. A. G.
Phillips, R. P.
Potts, E.
Pratley, Miss H. M.
Richards, L. L.
Saloway, H.
Seddon, T. F.
Skinner, P. A.
Smith, R. H.
Southworth, J. P.
Stott, S.
Stradling, Miss E. M.
Stringer, N.
Taylor, H. C. G.
Thomas, J. E.
Thorpe, Miss M. A.
Tidman, C. F.
Timms, B.
Train, G. P.
Tungate, M. D.
Vane, Miss M. A.
Walpole, Miss A. C.
Walsh, T.
Ware, J. H.
Washington, F. J.
Wearn, W. C.
Whetter, W. G.
Whitfield, T. F.
Whitney, T.
Wicks, J. D.
Wilcox, Miss H. A
Wood, A. E.

CLASS LISTS

OF CANDIDATES WHO HAVE PASSED THE CERTIFICATE EXAMINATION OF THE COLLEGE OF PRECEPTORS.—CHRISTMAS, 1913.

LIST OF SUCCESSFUL CANDIDATES AT COLONIAL AND FOREIGN CENTRES.

N.B.—The small italic letters denote that the Candidate to whose name they are attached was distinguished in the following subjects respectively :—

a. = Arithmetic.
al. = Algebra.
b. = Botany.
bk. = Book-keeping.
ch. = Chemistry.
d. = Drawing.
do. = Domestic Economy.
du. = Dutch.
e. = English.
f. = French.
g. = Geography.
ge. = German.
geo. = Geology.
gm. = Geometry.
gr. = Greek.
h. = History.
he. = Hebrew.
i. = Italian.
ir. = Irish.
l. = Latin.
lt. = Light and Heat.
m. = Mechanics.
ma. = Magnetism & Electricity.
ms. = Mensuration.
mu. = Music.
p. = Political Economy.
ph. = Physiology.
phys. = Elementary Physics.
s. = Scripture.
sc. = Elementary Science.
sh. = Shorthand.
sp. = Spanish.
ta. = Tamil.
t. = Trigonometry.
w. = Welsh.
z. = Zoology.

In the addresses, Acad. = Academy, C. or Coll. = College, Coll. S. = Collegiate School, Comm. = Commercial, Conv. = Convent, Elem. = Elementary, End. = Endowed, Found. = Foundation, H. = House, Hr. = Higher, Inst. = Institute, Int. = International, Inter. = Intermediate, Poly. = Polytechnic, Prep. = Preparatory, P.-T. = Pupil-Teachers, S. = School, Sec. = Secondary, Tech. = Technical, Univ. = University.

The small figures [1] *and* [2] *prefixed to names in the Second and Third Class Lists denote that the Candidates were entered for the First and Second Classes respectively*

[Bracketing of names denotes equality.]

BOYS.

FIRST CLASS [or Senior]. Honours Division.

De Saxe, M. *a.al.ch.* Marist Bros.' Coll., Johannesburg

FIRST CLASS [or Senior]. Pass Division.

Hart, H. Marist Bros.' Coll., Johannesburg
McGuire, J.J. *ch.* Marist Bros.' Coll., Uitenhage
Ruthnam, A. *s.e.* Norris Coll., Rangoon
Chambers, F.J. *du.* Marist Bros.' Coll., Uitenhage
Brampton, D.N. Johannesburg Business Coll.
Arambamuthali, V. Wesleyan Central High S., Batticaloa
Mendelsohn, S. *a.* Marist Bros.' Coll., Johannesburg
Chelliah, H.P. National Christian Acad., Manepay
Davies, D.J. *ch.* Private tuition
Reuvid, L. Marist Bros.' Coll., Johannesburg
Guneratnam, C.P. Eton Coll., Colombo
Young, P. Norris Coll., Rangoon
Thiagarasah, V.P. Private tuition
Moung, Ba Norris Coll., Rangoon

SECOND CLASS [or Junior]. Honours Division.

Osman, M.L. *g.ta.* Wesleyan Central High S., Batticaloa
Walton, G.W. St. Vincent Gram. S., Kingstown
Noel, E.A. *s.* Mt. Pleasant Government S., Grenada
Suzman, S. *he.* Marist Bros.' Coll., Johannesburg
Kaplan, H *al.* Marist Bros.' Coll, Johannesburg
Misso, P.V. *f.* Eton Coll., Colombo
Segall, E. *al.* Marist Bros.' Coll., Johannesburg
Pitt, R.J.L. *s.* Mt. Pleasant Government S, Grenada
Silva, B.J. *al.* Private tuition
Knower, H.W. *al.* Eton Coll., Colombo

SECOND CLASS [or Junior]. Pass Division.

[1]Kariapper, M.A.Z. Wesleyan Central High S., Batticaloa
Rodger, R. Marist Bros.' Coll, Johannesburg
Markiles, M. Marist Bros.' Coll., Johannesburg
Robertson, S. *a.* St. Aidan's Coll., Grahamstown
Marikar, A.H.S. Eton Coll., Colombo
Bandaranayake, J.B.M. Eton Coll., Colombo
Pallas, H. Marist Bros.' Coll., Johannesburg
Murugapper, K. St. Michael's Coll., Batticaloa
Holey, G.P. *al.* Marist Bros.' Coll., Cala
Powell, A. Marist Bros.' Coll., Johannesburg
Clarke, T.L. St. Vincent Gram. S., Kingstown
De Singhe, W.D. Eton Coll., Colombo
Ramsay, T.W. Marist Bros.' Coll., Cala
Thampapillai, J.R. Private tuition
Thomas, E. Marist Bros.' Coll., Johannesburg
Bryant, A. St. Aidan's Coll., Grahamstown
Fernando, M.A. Eton Coll., Colombo
Miller, D. St. Aidan's Coll., Grahamstown
Adler, L. Marist Bros.' Coll., Johannesburg
[1]Ingram, G. Marist Bros.' Coll., Johannesburg
Thornton, E.R. Marist Bros.' Coll., Cala
Barthelot, B. St. Michael's Coll., Batticaloa
Robinson, E. Marist Bros.' Coll., Johannesburg
Joseph, M.C. Grenada
Tommaipillai, T. St. Michael's Coll., Batticaloa
Velupillai, M.S. Private tuition
Bernstein, S. Marist Bros.' Coll., Johannesburg
Brereton, R.M. Private tuition
Marasinghe, B.S. Eton Coll., Colombo
Francis G. St. Michael's Coll., Batticaloa
Mitchell, T. *du.* St. Aidan's Coll., Grahamstown
[1]Thin, W. Norris Coll., Rangoon
Cardoza, J.P. Eton Coll., Colombo
[1]Nandiapper, T. *s.* St. Michael's Coll., Batticaloa
Furley, D. *lt.* St. Aidan's Coll., Grahamstown
Ross, C. St. Aidan's Coll., Grahamstown
Lewis, M. Marist Bros.' Coll., Johannesburg
Gunawardene, A.S. Eton Coll., Colombo
Mortier, A.C. Private tuition
Coleman, A. Private tuition
Ewels, R.G. Marist Bros.' Coll., Cala
Lipman, I. Marist Bros.' Coll., Johannesburg
[1]Ragaviah, R. Norris Coll., Rangoon
Naikwara, M.H. Norris Coll., Rangoon
[1]Po, L.K. Norris Coll., Rangoon
Perera, K.F. Private tuition
John, A.K. *s.* Private tuition
Thambyrajah, S.V. Wesleyan Central High S., Batticaloa
[1]Tully, M.B. Marist Bros.' Coll, Uitenhage
[1]Candiya, M. Eton Coll., Colombo
[1]Hunter, H.R. Marist Bros.' Coll., Uitenhage
Cowasjee, B.N. Norris Coll., Rangoon
Crawford, S.H. Private tuition
McKenzie, A. Marist Bros.' Coll., Johannesburg
Akusie, J.K. Accra Gram. S.
Perera, T.H. Eton Coll., Colombo
Rao, A. Norris Coll., Rangoon
Chein, J. Marist Bros.' Coll., Johannesburg
[1]Rabie, E.L. Marist Bros' Coll., Uitenhage
Venasitamby, M. Wesleyan Central High S., Batticaloa
Kasinader, E. St. Michael's Coll., Batticaloa
Killeen, T. St. Aidan's Coll., Grahamstown
Myerson, I. Marist Bros.' Coll., Johannesburg
[1]O'Hea, F.J.F. Marist Bros.' Coll., Uitenhage
Sein, S. Norris Coll., Rangoon
De Zylva, P.A. Eton Coll., Colombo
[1]Goldberg, J. Marist Bros.' Coll., Johannesburg
Lane, B. St. Aidan's Coll., Grahamstown
Olayoku, W.M. Abeokuta Gram. S.
Perera, S.W. Eton Coll., Colombo
Adler, J. Marist Bros.' Coll., Johannesburg
Nazavali, V.M. U.M.C.A. High S., Zanzibar
Ramupillai, K. Private tuition
Weeraratne, H.C. Private tuition
Williams, A.L. Private tuition
Kuforiji, J.A. Abeokuta Gram. S.
Edirisinghe, G.C. Eton Coll., Colombo
Daniel, T. Norris Coll., Rangoon
McLeod, F L. St. Vincent Gram. S., Kingstown
Dodanwala, L. Eton Coll., Colombo
Kayode, D.A. Abeokuta Gram. S.
Reyal, M L.M.M. Private tuition
Applaswamy, C.R. Norris Coll, Rangoon
Pereira, L. Eton Coll., Colombo
Thambiya, N. Eton Coll., Colombo
Casinader, E.D S. Wesleyan Central High S., Batticaloa
Thambyrajah, T. Wesleyan Central High S., Batticaloa
Saw, M. Norris Coll., Rangoon
De Cruse, B. Eton Coll., Colombo
Silva, S.A. Eton Coll., Colombo

THIRD CLASS. Honours Division.

Willcock, A. *e.a.al.gm.* Marist Bros.' Coll., Uitenhage
Brereton, H.L. *e.h.a.* St. Vincent Gram. S, Kingstown
Francis, B. *e.a.al.du.* Marist Bros.' Coll., Uitenhage
Pitt, B.L.J. *a.al.* Beaulieu Roman Catholic S., Grenada
Fletcher, J.W. *a.bk.* St. David's Roman Catholic S., Grenada
Levine, F. *e.a.al.* Maris Bros.' Coll., Uitenhage
Sutton, J. *e.a.du.* Marist Bros.' Coll., Uitenhage
Tejuoso, E.A. *al.gm.l.* Abeokuta Gram. S.
Levy, F. *e.a.al.* Marist Bros.' Coll., Uitenhage
Ireland, W.F. *e.h.al.* Constantine Wesleyan S., Grenada
Moorcroft, V. *e.a.al.* Marist Bros.' Coll., Uitenhage
van Gorkom, A.C. *a.al.gm.du.* Marist Bros.' Coll., Johannesburg
Ajala, S.A. *al.* Abeokuta Gram. S.
Husemeyer, F. *e.a.al.gm.d.* Marist Bros.' Coll., Johannesburg
Lewis, J. *a al.* Marist Bros.' Coll., Uitenhage
Gordon, S. *e.h.* Marist Bros.' Coll., Uitenhage
Waites, T. *e.a.* Marist Bros.' Coll., Uitenhage
Morris, G. *e.h.* Marist Bros.' Coll., Uitenhage
Humphrey, A.T. *e.a.* St. Andrew's Wesleyan S., Grenada
Lenaghan, K. *e.a.al.* Marist Bros.' Coll., Uitenhage
Bousfield, W. *a.* Marist Bros.' Coll., Cala
Bellad-Ellis, R. *a.al.* Marist Bros.' Coll., Uitenhage
Coombs, C.A. *s.* St. Vincent Gram. S., Kingstown
Mungo F.V. Crochu Roman Catholic S., Grenada
Tomkyns, H. *a.al.* Marist Bros.' Coll., Johannesburg
Kannemeyer, G. *e.a.* Marist Bros.' Coll., Uitenhage
McGuire, L. *a.* Marist Bros.' Coll., Uitenhage
McLean, D.G. *e.a.al.* Marist Bros.' Coll., Cala
Mohr, W.J. *h.du.* Marist Bros.' Coll., Uitenhage
Deutschman, W. *a.al.* Marist Bros.' Coll., Uitenhage

THIRD CLASS. Pass Division.

[2]Mahon, A.W. River Sallee Government S., Grenada
[2]Livin, W. *d.* Norris Coll., Rangoon
[2]Ferdinando, D.H.E. Eton Coll., Colombo
[2]Vanderpuye, C.I. Accra Gram. S.
Chambers, C. *a.* Marist Bros.' Coll., Uitenhage
Brannan, W. *a.* St. Aidan's Coll., Grahamstown
Casinader, C.B. *e.* Wesleyan Central High S., Batticaloa
Hickson, J.T. *h.a.* Private tuition
Henwood, B. *a.al.* Marist Bros.' Coll., Johannesburg
[2]Smith, C.J. Marist Bros' Coll., Cala
[2]Uvais, O.L.M.M. Eton Coll, Colombo
Johnson, A.H. *e.a.al* High S., Harbour Island, The Bahamas
Odunlami, B.A. Abeokuta Gram. S.
Priestley, F. Marist Bros.' Coll., Johannesburg
Sage, D. *e.al.* Marist Bros.' Coll., Uitenhage
Forman, C. *a.al.* Marist Bros.' Coll. Uitenhage
Martin, S. Private tuition
Albury, E.C. *s.h.* High S., Harbour Island, The Bahamas
Barnes P. *a al.* Marist Bros.' Coll., Johannesburg
Gluckman, S. *a.al.* Marist Bros.' Coll., Johannesburg
Haynes, G D. *s.* St. Andrew's Wesleyan S., Grenada
Maganlal, P. *a.al* U.M.C A. High S., Zanzibar
McMenamin, J. *l.* St. Aidan's Coll., Grahamstown
Moss, E.H. *a.* Marist Bros.' Coll, Cala
Johnson, G. *a.gm.* Marist Bros.' Coll, Johannesburg
Tasker, J. *a.* Marist Bros.' Coll., Johannesburg

BOYS, THIRD CLASS, PASS DIVISION—*continued.*

Lipede, A.A. — Abeokuta Gram. S.
²Philip, M. — St. Michael's Coll., Batticaloa

²Aberdeen, J.E. — Mt. St. Ervan's Roman Catholic S., Grenada
Connelly, J. *a.gm.* — Marist Bros.' Coll., Johannesburg
Gallwey, J. *a.* — St. Aidan's Coll., Grahamstown
²Ogurombi, C.A. — Abeokuta Gram. S.
Phillips, A. *a.al.* — Marist Bros.' Coll., Uitenhage

de Lacy, Q. *a.* — Marist Bros.' Coll, Johannesburg
Hart, R.S. *a.* — Marist Bros.' Coll., Cala
Subrahmaniyer, S. *a.* — Wesleyan Central High S., Batticaloa
²Vincent, W.D. — Eton Coll., Colombo

Harding, A.H. — Marist Bros.' Coll., Cala
Johnson, J. *a.* — Holy Inuocents' Anglican S., Grenada
Ranesinghe, S.B. — Eton Coll., Colombo

Bernstein, S.N. *h.* — Marist Bros.' Coll., Uitenhage
Ingraham, P.A. — High S., Harbour Island, The Bahamas
²Kemp, B. — Marist Bros.' Coll., Johannesburg
²Oluwole, B.E. — Private tuition
²Ponniayh, S. — St. Michael's Coll., Batticaloa

²Crentsil, R.E. — Accra Gram. S.

April, McL. *s.* — Hillsborough Government S., Grenada
Jones, G.W. — Marist Bros.' Coll., Cala
Thomas, G.H. *e.* — St. Vincent Gram. S., Kingstown

²Berman, A. — Marist Bros.' Coll., Johannesburg
²Thuriappah, V. — Private tuition

Cobham, M.L. *a.* — St. George's Wesleyan S., Grenada
Coetzee, P.S. *gm.* — Marist Bros.' Coll., Johannesburg
Hadley, C.V.D. — St. Vincent Gram. S., Kingstown
Thornton, H.G. *a.* — Marist Bros.' Coll., Cala

Curry, C.H., *a.* — High S., Harbour Island, The Bahamas
Lang, O.P. — Marist Bros.' Coll., Cala
²Mutta Kumaru, K. — Private tuition
Reece, P. *e.* — Marist Bros.' Coll., Uitenhage

Browne, R.E.A. — St. Vincent Gram. S., Kingstown
²Casie Chitty, C.J. — Central Coll., Colombo
²Coker, F.A. — Abeokuta Gram. S.
Court, P.R. *a.al.* — Marist Bros.' Coll., Johannesburg
Ingraham, R.R. *a.* — High S., Harbour Island, The Bahamas

Block, J. — Marist Bros.' Coll., Johannesburg
Ferreira, P.P. — Marist Bros.' Coll., Cala
Nicholas, D. — Marist Bros.' Coll., Johannesburg
²Trennery, C. — Marist Bros.' Coll., Cala

Bamgbola, O.S. — Abeokuta Gram. S.
Nolan, T. *a.* — Marist Bros.' Coll., Uitenhage
Stephen, E.A.M. — St. Andrew's Roman Catholic S., Grenada
²Suppiah, K. — Private tuition

²Muttappah, T. — Private tuition

²Abeyegunesekere, G.A. — Eton Coll., Colombo
Arnold P.D.D. *a.* — Private tuition
²DeMel, V.S. *d.* — Eton Coll, Colombo
Mathis, E. *al.* — St. Aidan's Coll., Grahamstown
Tricker, N. *al.* — Marist Bros.' Coll., Johannesburg
Walker, H.R. *a.* — Marist Bros.' Coll., Cala

²Fernando, T.E. — Eton Coll., Colombo
Jenkins, D. — St. Aidan's Coll., Grahamstown
Planniappah, S. *e.* — Private tuition
²Waltman, S. — Marist Bros.' Coll., Johannesburg

Cordice, N.H. — Private tuition
Hall, N. *a.* — Marist Bros.' Coll., Johannesburg
Rabadina, J.F. — U.M.C.A. High S., Zanzibar
Rodwell, J. — Marist Bros.' Coll., Uitenhage
Williams, S.O. — Abeokuta Gram. S.

Albury, C.F. — High S., Harbour Island, The Bahamas
Asai, E. *a.* — Private tuition
Dedeke, N.S. — Abeokuta Gram. S.
²Gomes, A.A.A. — Private tuition

Casteling, P. — Marist Bros.' Coll., Cala
Robertson, R. — St. Aidan's Coll., Grahamstown

Perl, M. — Marist Bros.' Coll., Uitenhage
Rubidge, N. — Marist Bros.' Coll., Uitenhage
Whittaker, C. *a.* — Marist Bros.' Coll., Johannesburg

Griffin, J. — St. Aidan's Coll., Grahamstown

Ferreira, A.J. — Marist Bros.' Coll, Cala
²Karunanayake, M.S.A. — Central Coll., Colombo

²Bannerman, J.K. — Private tuition
²Vytilingam, A. — Private tuition

Hammond, H. — Marist Bros.' Coll., Johannesburg
Isaacs, A. *a.* — Marist Bros.' Coll., Johannesburg
Levinson, C. — Marist Bros.' Coll., Johannesburg
Levy, N. *a.* — Marist Bros.' Coll., Johannesburg
²Lewis, H. — Marist Bros.' Coll., Johannesburg
²Roberts, J.O. — The New High Class S., Lagos
Samarakoon, R.A. *a.* — Private tuition

²Abeyratne, L. — Central Coll., Colombo
²Brenning, P. — Marist Bros.' Coll., Johannesburg
²Green, D.L. — Abeokuta Gram. S.
Mitchell, R.F. — St. Vincent Gram. S., Kingstown
Sagoe, W.A.K. — Private tuition
Waller, S.J. — Beaulieu Roman Catholic S., Grenada

Burns, J. — Marist Bros.' Coll., Johannesburg
Hardy, V. *a.* — Marist Bros.' Coll., Johannesburg
²Karim, A. — Wesleyan Central High S., Batticaloa
Scallan, P. — Marist Bros.' Coll., Johannebburg

Dixon, N.O. — Abeokuta Gram. S.
²Frugtuiet, C.G. — Private tuition
Morison, C. — St. Aidan's Coll., Grahamstown
Peiris, M.D. — Eton Coll., Colombo
Yin, M.B. — Private tuition

²Sellaturai, K. — Private tuition
Vandergucht, W.G. — Weslcyan Central High S., Batticaloa

²De Silva, S. — Etou Coll., Colombo
Phillips, J.S.O. — Private tuition
²Velupillai, R. — Private tuition

Hmat, M. — Private tuition
Hogsett, R. — Marist Bros.' Coll., Cala
²Muttiah, C. — Central Coll., Colombo

Roberts, J.E. — High S., Harbour Island, The Bahamas
Sommer, C. — Marist Bros.' Coll., Uitenhage
Wiesholtz, H. — Marist Bros.' Coll., Johannesburg

²Fisher, R. — Marist Bros.' Coll., Johannesburg
Quartey, D.I. — Accra Gram. S.

Johnson, R.E. *a.* — Marist Bros.' Coll., Cala

Banjiro, H.A. — The New High Class S., Lagos
²Don Carolis, H.V. — Central Coll., Colombo
Hershowitz, A. — Marist Bros.' Coll., Johannesburg
Imoru, A. — The New High Class S., Lagos
Weidner, P. — Marist Bros.' Coll., Uitenhage

²Dharmadasa, H.M. — Eton Coll., Colombo
Hammond, E.L. — Accra Gram. S.
Jacob, P.S. — Central Coll Colombo
Kleinschmidt, H. — Marist Bros.' Coll., Uitenhage
Laing, T. — Accra Gram. S.

Commey, J.B. — Accra Gram S.
²Fernando, S.E. — Eton College, Colombo
²Kandyah, N. — Private tuition

Williams, O.M. — The New High Class S., Lagos

Ayorinde, E.O. — The New High Class S., Lagos
Meyer, A. — St. Aidan's Coll., Grahamstown
²Taylor, V. — The New High Class S., Lagos

²Nalaperumal, D. — Eton Coll., Colombo
Sangakkara, W. — Private tuition

²Kandyah, K. — Private tuition

Cole, A.B. — The New High Class S., Lagos
Hodge, T. — Emilian S., Johannesburg

Harraway, H. — St. Aidan's Coll., Grahamstown

GIRLS.

FIRST CLASS [*or Senior*].

Pass Division.

Nagele, F. *ge.* — Conv. of the Sacred Heart, Potchefstroom

SECOND CLASS [*or Junior*].

Honours Division.

Bonnet, E. *s.* — St. Joseph's Conv. S., Castries, St. Lucia

SECOND CLASS [*or Junior*].

Pass Division.

Auguste, W. — St. Joseph's Conv. S., Castries, St. Lucia
La Porte, C. — St. Joseph's Conv. S., Castries, St. Lucia
¹Buckland G. *mu.* — Parktown Conv., Johannesburg
Dawes, J.A. *du.* — Notre Dame Coll., Kroonstad
Bloom, L. — Notre Dame Coll., Kroonstad
Trüter, D.O'N. — Notre Dame Coll., Kroonstad
Fischer, E. — Conv. of the Holy Cross, Cala
Bruniquel, M. *f.* — Oakford Priory S, Verulam, Natal
Neckles, S. — Grenada High S., St. George's
Breen, M. — Conv. of the Holy Family, Kimberley
Murphy, M. — Conv. of the Holy Family, Kimberley
Wilson, L.M. — Conv. of the Holy Cross, Cala
Taylor, C.I. — Private tuition
Permal, L. — Norris Coll., Rangoon
Cheeseman, M. — Oakford Priory S., Verulam, Natal
Rattham, M.G. — Conv. of the Holy Family, Kimberley
²McFerran, D. — Oakford Priory S., Verulam, Natal
Mor imer, K. — Conv. of the Holy Family, End St., Johannesburg
Parakh, K. — Norris Coll., Rangoon
Thomas, A. — Oakford Priory S., Verulam, Natal

THIRD CLASS. Honours Division.

Royse, C. *s.e.a.al.* — Notre Dame Coll., Kroonstad
Daseut, I.G. *e.h.* — St. Vincent Girls' High S., Kingstown
Smith, I. *e.al.* — Conv. of the Sacred Heart, Potchefstroom
Pritchard, M *e.h.a.* — Grenada
Cox, A.L. *e.a.d.* — St. Joseph's Conv. S., Castries, St. Lucia

Crichton, E.M. *s.e.a.* — St. Vincent Girls' High S., Kingstown
Inglis, I. *al.d.* — St. Joseph's Conv. S., Castries, St. Lucia

Cox, M.T. *a.al.d.* — St. Joseph's Conv. S., Castries, St. Lucia
Short, G. *al.gm.* — Conv. of the Sacred Heart, Potchefstroom

George, E. *e.a.* — Belair Presbyterian S., Grenada

Collymore, A.R. *h.* — St. Vincent Girls' High S., Kingstown
Higgs, O.G. *al.* — High S., Harbour Island, The Bahamas
King, H. *s.e.du.* — Notre Dame Coll., Kroonstad

THIRD CLASS. Pass Division.

²Gabriel, R *sh.* — Conv. of the Sacred Heart, Potchefstroom
Gabbe, F. *a.du.* — Conv. of the Sacred Heart, Potchefstroom

²Bouwer, V.G. *du.* — Notre Dame Coll, Kroonstad
Ireland, O.J. — Constantine Wesleyan S., Grenada

Donald, A. — St. George's Girls' Roman Catholic S., Grenada
Reason, S. *a.* — St. Patrick's Anglican S., Grenada
Steil, B. — Conv. of the Sacred Heart, Potchefstroom
Newbauer, T. *s.* — Notre Dame Coll., Kroonstad

Carden, E. — Notre Dame Coll., Kroonstad
Politte, R.E.J. *e.* — Private tuition

²Indge, P.A. *mu.* — Conv. of the Holy Family, Kimberley
Philip, E.P. — Mt. Moritz Anglican S., Grenada
Hutchinson, M. — St. Dominic's Roman Catholic S., Grenada

Bacchus, C.L. — St. Vincent Girls' High S., Kingstown
Harris, J.V. — St. Ursula's Coll., Krugersdorp
Smith, P. — Conv. of the Sacred Heart, Potchefstroom

Taylor, J. — Conv. of the Sacred Heart, Potchefstroom
Cowie, N. *a.* — Conv. of the Holy Family, End St., Johannesburg
Goulding, F. *d.* — Notre Dame Coll., Kroonstad
²Robertson, W. — Oakford Priory S., Verulam, Natal

Herberich, B.L. — St. Ursula's Coll., Krugersdorp
Ninham, M — Notre Dame Coll., Kroonstad
Roberts, H.M. — High S., Harbour Island, The Bahamas

Kelly, A. — Conv. of the Sacred Heart, Potchefstroom
Smith, J. — Conv. of the Sacred Heart, Potchefstroom

Bramwell, A *al.* — Conv. of the Sacred Heart, Potchefstroom
Vogts, I. — Conv. of the Sacred Heart, Potchefstroom

De Meillon, T. — Notre Dame Coll., Kroonstad
Meets, V. — Conv. of the Sacred Heart, Potchefstroom

Jobson, M.V. — St. Ursula's Coll., Krugersdorp
Sweeting, A. — High S., Harbour Island, The Bahamas

Hutchinson, M.K. — St. Vincent Girls' High S., Kingstown
²James, E. — Conv. of Holy Family, End St., Johannesburg
²Marks, M. — Oakford Priory S., Verulam, Natal

Lunderstedt, G. — Conv. of the Sacred Heart, Potchefstroom

Huggup, H. — Notre Dame Coll., Kroonstad
Wilson, S. *e.* — Conv. of the Holy Cross, Cala

²Halsall, D. — Conv. of the Holy Family, End St., Johannesburg
²Cheeseman, B. — Oakford Priory S., Verulam, Natal

Blundell, R.F. — St. Ursula's Coll, Krugersdorp
McLachlan, L. — Convent High S., Mafeking

Bagley, W. — Oakford Priory S, Verulam, Natal
Harris, D.E. — St. Ursula's Coll., Krugersdorp
Rand, F.M. *a.* — Conv. of the Holy Family, Kimberley
Cleare, I.A. — High S., Harbour Island, The Bahamas
Solomon, J. — Conv. of the Sacred Heart, Potchefstroom
²McLean, G. — Oakford Priory S, Verulam, Natal
Clark, F. — Oakford Priory S., Verulam, Natal
Alexander, J.V. — Private tuition

Berman, F. — Notre Dame Coll., Kroonstad
Jensen, M. — Conv. of the Holy Family, End St., Johannesburg
Kerr, E. — Conv. of the Sacred Heart, Potchefstroom

²Buckley, G. — Oakford Priory S., Verulam, Natal

Blank, M. — Conv. of the Holy Family, End St., Johannesburg
Cannell, C., — Oakford Priory S., Verulam, Natal

Jackson, D. — Conv. of the Sacred Heart, Potchefstroom
Porter, E. — Oakford Priory S., Verulam, Natal
Ricketts, E. — Conv. of the Holy Family, End St., Johannesburg

Carroll, I. — Conv. of the Holy Family, End St., Johannesburg
Leviton, G. — Conv. of the Holy Family, End St., Johannesburg

LOWER FORMS EXAMINATION — PASS LIST.

BOYS.

Abrahamson, M. Marist Bros.' Coll., Johannesburg
Adelson, J. Marist Bros.' Coll., Johannesburg
Allpass, G. Marist Bros.' Coll., Johannesburg
Anderson, J. Marist Bros.' Coll., Johannesburg
Belcher, H. Marist Bros.' Coll., Johannesburg
Benjamin, J. Marist Bros.' Coll., Johannesburg
Bornman, C. Marist Bros.' Coll., Johannesburg
Brewer, H. St. Aidan's Coll., Grahamstown
Bristow, W. Marist Bros.' Coll., Johannesburg
Bromilow, S. Marist Bros.' Coll., Johannesburg
Burley, E. Marist Bros.' Coll., Johannesburg
Cavanagh, R. Marist Bros.' Coll., Cala
Cockran, J. O. A. Grenada High S., St. George's, Grenada
Conway, J. Marist Bros.' Coll., Johannesburg
Creany, N. Marist Bros.' Coll., Johannesburg
Daly, R. Marist Bros. Coll., Johannesburg
Davis, A. Marist Bros.' Coll., Johannesburg
Dawson, L. Marist Bros.' Coll., Johannesburg
Devine, A. Marist Bros.' Coll., Johannesburg
Doherty, B. Marist Bros.' Coll., Johannesburg
Drew, B. Marist Bros.' Coll., Cala
Dunleavy, J. Marist Bros.' Coll., Johannesburg
Egling, J. Marist Bros.' Coll., Cala
Fadas, E. S. O. Abeokuta Gram. S.
Fihrer, N. Marist Bros.' Coll., Johannesburg
Fikuart, H. Marist Bros.' Coll., Johannesburg
Fisher, M. Marist Bros.' Coll., Johannesburg
Ginsberg, E. Marist Bros.' Coll., Johannesburg
Graham, A. Marist Bros.' Coll., Johannesburg
Gray, R. Marist Bros.' Coll., Cala
Greenberg, H. Marist Bros.' Coll., Johannesburg
Hahn, R. Marist Bros.' Coll., Johannesburg
Harman, F. Marist Bros.' Coll., Johannesburg
Hayes, T. M. B. Grenada High S., St. George's, Grenada
Hind, M. Marist Bros.' Coll., Johannesburg
Hinds, A. Marist Bros.' Coll., Johannesburg
Hobson, A. W. Marist Bros.' Coll., Cala
Howe, A. St. Aidan's Coll., Grahamstown
Hughes, B. Marist Bros.' Coll., Johannesburg
Hughes, V. Marist Bros.' Coll., Johannesburg
Hurwitz, C. Marist Bros.' Coll., Johannesburg
Husemeyer, O. Marist Bros.' Coll., Johannesburg
Jager, L. Marist Bros.' Coll., Johannesburg
Jelley, G. Marist Bros.' Coll., Cala
Jibowu, S. O. Abeokuta Gram. S.
Jones, T. St. Aidan's Coll., Grahamstown
Jones, W. St. Aidan's Coll., Grahamstown
Kane, J. Marist Bros.' Coll., Johannesburg
Kayode, C. O. Abeokuta Gram. S.
Kuhn, J. St. Aidan's Coll., Grahamstown
Lahner, W. Marist Bros.' Coll., Johannesburg
Larsen, C. Conv. of the Sacred Heart, Potchefstroom
Layeni, O. New High Class S., Lagos
Lehmann, H. Marist Bros.' Coll., Cala
Le Sueur, L. Marist Bros.' Coll., Johannesburg
Linden, R. Marist Bros.' Coll., Johannesburg
Lino, P. A. Abeokuta Gram. S.
Logan, E. St. Aidan's Coll., Grahamstown
Maasch, A. Marist Bros.' Coll., Johannesburg
Majekodunmi, A. S. Abeokuta Gram. S.
Majekodunmi, J. B. Abeokuta Gram. S.
McCartan, A. Marist Bros' Coll., Johannesburg
McCormick, H. Marist Bros.' Coll., Johannesburg
McMenamin, H. St. Aidan's Coll., Grahamstown
Meisel, D. Marist Bros.' Coll., Johannesburg
Morris, I. St. Aidan's Coll., Grahamstown
Mortimer, W. Marist Bros.' Coll., Johannesburg
Obafunmiso, D Abeokuta Gram. S.,
O'Connor, J. Marist Bros.' Coll., Johannesburg
Oosterbrock, H. Marist Bros.' Coll., Johannesburg
O'Reilly, James Marist Bros.' Coll., Johannesburg
O'Reilly, Justin Marist Bros.' Coll., Johannesburg
Peake, B. Marist Bros.' Coll., Johannesburg
Phillips, E. O. Abeokuta Gram S.
Phillips, M. Marist Br s.' Coll., Cala
Plasket, G Marist Bros.' Coll., Johannesburg
Powels, V. St. Aidan's Coll., Grahamstown
Quintella, J. Marist Bros.' Coll., Johannesburg
Ramsbottom, O. St. Aidan's Coll., Grahamstown
Roomer, A. Marist Bros.' Coll., Johannesburg
Rowe, A. Marist Bros.' Coll., Johannesburg
Saenger, J. Marist Bros.' Coll., Johannesburg
Santos, G. B. Abeokuta Gram. S.
Sayer, W. Marist Bros.' Coll., Johannesburg
Scott, V. O. New High Class S., Lagos
Skinner, V. Marist Bros.' Coll., Cala
Smith, E. Marist Bros.' Coll., Cala
Sodeinde, E. O. Abeokuta Gram. S.
Sodipo, S. O. Abeokuta Gram. S.
Somanader, E. D. A. Wesleyan Central High S., Batticoloa
Sommerville, A., St. Aidan's Coll., Grahamstown
Somoye, W. O. Abeokuta Gram. S.
Spencer, A. Marist Bros.' Coll., Johannesburg
Spiro, A. Marist Bros.' Coll., Johannesburg
Suzman, S. Marist Bros.' Coll., Johannesburg
Taylor, E O. Abeokuta Gram S.
Vieyra, H. Marist Bros.' Coll., Johannesburg
Vucinovich, J. Marist Bros.' Coll., Johannesburg
Wilmot, E. St. Aidan's Coll., Grahamstown
Windsor, J., Marist Bros.' Coll., Johannesburg
Wood, W. Marist Bros.' Coll., Cala
Wright, R. Marist Bros.' Coll., Cala

GIRLS.

Abrahamson, S. Conv. of Holy Family, End St, Johannesburg
Allnutt, G. P. Conv. of the Holy Family, Kimberley
Arenstein, B. Conv. of the Sacred Heart, Potchefstroom
Beardwood, E. Parktown Conv., Johannesburg
Botha, M. Notre Dame Coll., Kroonstad
Bryson, V. Conv. of the Holy Cross, Cala
Cavanagh, O. Conv. of the Holy Cross, Cala
Clarkson, M. Parktown Conv., Johannesburg
Coleman, A. Oakford Priory S, Verulam. Natal
Cubitt, L. Conv. of the Sacred Heart Potchefstroom
Dargie, V. Conv. of the Holy Cross, Cala
Dawes, F. Notre Dame Coll., Kroonstad
Duval, A. M. St. Joseph's Conv. S., Castries, St. Lucia
Etheridge, I. Oakford Priory S., Verulam, Natal
Ewers, M. Conv. of the Holy Cross, Cala
Fell, N. Notre Dame Coll., Kroonstad
Ferreira, M. Conv. of the Holy Cross, Cala
Ferrero, K. Conv. of the Sacred Heart, Potchefstroom
Fletcher, I. Oakford Priory S., Verulam, Natal
Franks, D. Parktown Conv., Johannesburg
Ganter, M. Notre Dame Coll., Kroonstad
Gordon, R. Convent High S., Mafeking
Grieve, A. Conv. of the Sacred Heart, Potchefstroom
Harris, I. St. Ursula's Coll, Krugersdorp
Hart, M. Convent of the Holy Cross, Cala
Hillman, G. Conv. of the Sacred Heart, Potchefstroom
Hindsor, F Notre Dame Coll., Kroonstad
Johnstone, L. E. St. Ursula's Coll., Krugersdorp
Kaplan, E. Parktown Conv., Johannesburg
Kegel, M. Parktown Conv., Johannesburg
Kemsley, D. Notre Dame Coll., Kroonstad
Kerr, L. Parktown Conv., Johannesburg
King, A. R. St. Ursula's Coll., Krugersdorp
King, D. J. St. Ursula's Coll., Krugersdorp
Kirkman, M I. Conv. of the Holy Family, Kimberley
Kirsten, L. Conv. of the Sacred Heart, Potchefstroom
Küsel, N. Conv. of the Holy Family, End St., Johannesburg
Langermann, A Parktown Conv., Johannesburg
Lansiquot, I. St. Joseph's Conv. S., Castries, St. Lucia
Laporte, L. St. Joseph's Conv. St., Castries, St Lucia
Ling, D L. Conv. of the Holy Family, Kimberley
Lloyd, D. C. Conv. High S., Mafeking
Lowry, K. Conv. of the Holy Cross, Cala
Markiles, S. Conv. of the Holy Family, End St., Johannesburg
Marks, I. Oakford Priory S., Verulam, Natal
McBurnie, N. H. Grenada High S., St. George's, Grenada
Michel, F. Parktown Conv., Johannesburg
Muller, D. Conv. of the Holy Cross, Cala
Nadig, P. Conv. of the Sacred Heart, Potchefstroom
Oliver, G. M. St. Ursula's Coll., Krugersdorp
Phillips, E. M. Grenada High S., St. George's, Grenada
Pollock, M. Parktown Conv., Johannesburg
Ranger, M E. High S., Harbour Island, Bahamas
Roberts, E. Oakford Priory S., Verulam, Natal
Rose, D. Parktown Conv., Johannesburg
Ruxton, E. Parktown Conv., Johannesburg
Ryan, E. F. Conv. of the Holy Family, Kimberley
Sinclair, J. Oakford Priory S., Verulam, Natal
Thirion, T. Conv. of the Sacred Heart, Potchefstroom
Thompson, D. Oakfield Priory S., Verulam, Natal
Verneuil, D. St. Joseph's Conv. S., Castries, St. Lucia
Waldon, I. St. Ursula's Coll., Krugersdorp
Winward, D. St. Ursula's Coll., Krugersdorp

THE LIGHTER SIDE OF PEDAGOGY.

The Archbishop of Canterbury, speaking at a high school last month, told an amusing story of an experience of his own. He was visiting a school, and the head master, wishing to impress the scholars with the importance of the occasion, announced his Grace's title and then asked of the class: "What do you know about Canterbury?" Faced with such a vague question the boys remained silent, until, after repeated pressing a little chap put up his hand and shouted: "Where mother gets her frozen lamb from."

* * *

Dora was but five years old and she loved singing carols. One day she begged to have the carol about the handsome captain. Both the mother and the nurse were entirely puzzled, but the child insisted. At last, after much thought and turning of leaves, the right one was found. It began:

Oh come, oh come, Emmanuel,
And ransom captive Israel!

* * *

A confusion somewhat similar to the above is mentioned in Sir John Struthers's recent Report on Secondary Education in Scotland. The Report says: "It is obvious that in all forms of study alike the human mind is impatient of multiplicity, and is apt to seize on similarity whenever it can be found." Illustrations of this are quoted in the confusion of the Black Prince with Surajah Dowlah; the explanation of a Job's comforter as a thing to give the baby the patience of Job; and in the translation of *naves longas* as "delaying ships."

* * *

In the *Cambridge Review* Mr. A. C. Bray has some amusing verse describing the tourists at Rome who have discarded their Baedekers and flock round the Montessori schools. One verse runs:

O, the joy there will be when the gazers shall see that Carlo can roll on the floor,
When Antonio's mind makes the staggering find that one goes in and out by the door,
When Luigi shall shriek at the end of a week that he knows how to stand on his head,
And when words of one letter (exclusive of Greek) by the lisping Giuseppe are read.

* * *

We are indebted to the *Manchester Guardian* for the following essay written by an eleven-year-old member of the "Lend a Hand Club" of the Collier Settlement in New York, an organization that appears to resemble Scouting in England:

I am a member of the Lender Hand Club, the members of our club are very polite. They show how polite they are in the ways I am going to tell. In case a teacher of the settlement passes we tip our

hats. Sometimes when a teacher carries a satchel the member who sees her will ask her to let him carry the satchel. If a blind or old person passes the street and wants to cross the gutter we take them across. We look out for the settlement. If anybody rings the bell who rings it to have fun I will tell him to stop and if I catch him again then I will do to him what he needs.

* * *

From the same source (*Manchester Guardian*) comes the letter below, which was found on the letter-stand outside one of the wards of the Manchester Royal Infirmary on Christmas Eve. It was written by a boy of seven who had just been operated on for appendicitis :—

Dere Santa claus, i no that it is not good manners to ask for things but if you should call here I would like yu to bring some very nise presents for all the nise nurses who have been so kind to me for myself i would like a new appendix insted of the one wich they took away so if you hav any of them please try and spare one for me you will no me by my red hare which is very long thank you for the present you gave me last year luv

bobby

ps my stokin has a white stripe on it.

* * *

The superintendent of a Sunday-school was illustrating for the children the text, "Arise, and take the young child and his mother, and flee into Egypt." Showing them a large picture, she asked, "Now, isn't that splendid? Here is the mother. Here is the young child. There's Egypt in the distance." The children, however, looked disappointed, and finally a little boy piped out: "Teacher, where's the flea?"—*Evening Standard.*

FEBRUARY 1914.

O why do we hail with a frenzy our *Mail*, or clutch at our scintillant *Star*,
Or sprint as one man for the latest in *Standards*, or cry for our *Leader* afar;
Is there gloomy report of intent to deport a Cabinet Council *en bloc*,
Is the Tango arising again to cavort, does a Bishop appear in the dock?

Can it possibly be that we're panting to see yet another ecstatical shriek
Of the excellent "press" that our own Dottoressa commands by the day or the week;
Are we pining to hear once again that the dear little Beppo can roll on the mat,
Or to learn of the pension for martyrdom drear that the Casa awards to the cat?

It is not such as these that, with tremulous knees, we seek as our journal we buy,
It is but that we know there's a sound of a going afar in the orchards of Wye;
There's a crowd that awaits every wire at the gates of the schools in the succulent vale,
And the sedulous guardians of Hereford's rates are intense, and perspiring, and pale.

For the Chevalier Yoxall hath pulled up his socks, and is out for a fight to a finish,
And the soldierly Ranken, with eye on the Bank, hath a spirit that naught can diminish;
At each other they glare, while the trumpeters blare, and the Board (unofficially) grieve,
And the joyous *discipuli* dance in the air at the prospect of æons of leave.

A. C. B.

ROMANCE AS A FACTOR IN DEVELOPMENT.

By Mrs. Scott.

We teach children all sorts of things except how to live life joyously and richly. What teaching will help them to this? Does the influence of that which we call Romance help to produce a joyous, rich life? Is eager vitality always good and noble; and, if not, why not? Is the influence of Romance always a helpful factor in wholesome development? These are some of the questions to which we want an answer.

Poets have sung of the romance which they have found in all things, amongst simple, country folk, or in crowded towns, in lives of high endeavour, and in lives which seem almost wholly sordid and low. Because we must admit it may be found in all those things, we are forced to the conclusion that wherever men and women are, there is the possibility of romance. Man's spirit demands romance as the body demands food.

Unless we consider that the romantic tendency is a thing to be wholly stamped out and discouraged, we are bound to consider what place its development should take in the education of a child and the evolution of a people. There may be some good dames and hard-headed business men who think that romance is a luxury for the privileged, and an unmitigated hindrance to all those who work to produce money. It is from people who hold these opinions that we get thoroughgoing materialist views as to marriage and the relationship of the sexes, and as to what constitutes the real worth of life. But others recognize that wherever a feeling is instinctive, an appetite natural, it must be reckoned with and directed—it is useless as well as wrong to try to stamp it out. The spirit will expend itself in wrong channels if right ones are not opened out. Nor does it need much consideration to see how poor a thing life would be without romance. We have only to look at the early history of nations or the childhood and youth of individuals to see this. Imagine past history without its chivalry or present-day life left entirely to its money-grubbing! Take the folk-lore and legends of any nation you like, you find the same thing. Imagination has glorified common existence, has peopled the unknown with strange and awesome creatures, has produced warriors and saviours from the most unexpected quarters, and has transformed ordinary maidens and distressed damsels into wondrous princesses and fair ladies. What, at close quarters, might have been the horrors of the battlefield, or soiled and tawdry finery, romance transmutes into the lists where prowess carries all before it, and right always wins, while silken banners wave in the breeze, and the sun shines on gay rows of flower-like ladies.

Or take the child who may one hour be the hunter tracking the most terrific of beasts, the Red Indian with stealthy footsteps and listening ear creeping through dark forests, or the swaggering pirate who dares all things and defies commonplace justice. Or the youth or the maiden, who in their hunger for friendship and their desire for self-realization, will walk for hours in the dullest of streets hoping to meet and know the one destined for them.

We must accept romance then as something present in human life which we have to reckon with. It is an appetite which demands food, it is an activity which insists on expression. Just as the baby, improperly fed, will seize on coal or earth to carry to its mouth, so the human being with romantic desires unsatisfied, has seized often on that which is unwholesome and undesirable; the halo of romance has been thrown round things whose inherent nature is the very opposite of romantic.

What then is romance? Is it not the faith that there is a hidden life which cannot manifest itself merely in terms of conventional well-being? Is it not the determination to attribute real worth to human life in some other terms than those of £ s. d.? Is it not the power to imagine an ideal?

Old romantic ideas may be left behind, but the spirit of romance remains. It is present in individuals all down the ages, though their aims may be different and the objects of their love various. Romance is noble or ignoble according to what the individual loves; but growth of consciousness comes to each through love of some sort. The ideal of the individual is more or less dependent on the general ideals of the age which has produced him, and so we have romance taking various forms at different periods and in different classes of society. We see sometimes also the romantic ideas of one age dragging on into a later one and still holding sway over some while the hearts of others are wholly alienated. This is partly owing to the stories of a past age which are handed down from one to the other; and the fact that this is chiefly done through the medium of books causes different ideals between readers and workers.

Romance is never in the thing itself, but grows round it and in it from the way that it is regarded? Romance is the life which informs the body of the thing, the spirit which directs it; it must not be confused with the body. It may reveal itself in various forms, and sometimes the form is foolishly looked upon as the essential, and has at times been carefully cherished long after the romantic spirit has departed. Or in the opposite way we have sometimes seen exuberant romantic life taking form in all kinds of ugly, uncouth, and even unpleasant forms. What is wrong there is not the life which is a natural, right thing, but the form it expresses itself by.

Let us take for granted then that the romantic spirit is part of life, is a lawful and right part of life, and let us look first at the forms it has taken in the past.

The first thing that occurs to one is the form it has taken in adventure, in daring, the going forth to seek and to know. Wherever man has risked his bodily life in the pursuit of something which has required daring, strength, resource, there one feels is romance. So in the past, hunting, fighting, and voyages of exploration have been and still are considered romantic. They may or may not be. The romance in them surely depends on the spirit which leads to them and the spirit which is manifested through them. Is there romance in the hunting of a carted stag or even in big game shooting from the back of an elephant with all the modern appliances for slaughter? There is no romance in the slaughter-house. Is there romance in most of present day soldiering, with its dependence on the financiers and its long-distance guns? I think not much. Romance is surely more rightly associated with a more reckless pouring out of life, a willingness to take greater risks, an impulse to take action with less consideration and arrangement behind. But reckless risk of life and the daring and strength that go along with it do not necessarily show the romantic spirit, though they are frequently considered to do so. Confusion over this is the reason why to the young and shallow-thinking the bandit and the pirate have seemed essentially romantic. But willingness to risk life is not the only constituent of romance. The reason for the risk, the aim of the one who risks it, have also to be considered. If the aim is mere selfish gain of any kind, the halo of romance soon fades away; but if the disregard of personal life is for the sake of a faith, a country, a friend, then two of the most necessary elements of romance are present.

Another part of human life with which romance has always been associated is the relationships between men and women. This is natural, for here at once are the necessary elements of romance. You have the attraction of the unknown which rouses the exploring instinct, the possibility of love which makes for self-forgetfulness, and the desire to give all, even one's life, for the loved one. Once in their lives at least most men and women are lifted out of the common work-aday world into the faery regions. The pity of it is that so often as the years go by the romance fades; and, worst of all, men are content that it should fade. Why should this be? Is it that the unknown, having become so well known, is counted commonplace? Is the human soul truly so easily known that in a few short years there is nothing more to be learnt? Does the story of its growth and development really close with marriage, as the old novels used to do. Surely there is something wrong with the life that men and women lead, if a dead hand so soon closes upon them, and the gates of the enchanted garden so soon are shut. Or does romance fade because selfishness and self-centredness triumph over love? So soon surely as we begin to ask for personal gain, to desire something for ourselves, instead of pouring out with a divine lavishness, which it is the essential nature of love to do, so surely romance will begin to die out.

But romance should not only be considered as an integral part of love between man and woman, but also of friendship, whether it is the friendship of man for man, woman for woman, or man for woman. In the few great friendships which are famous in the world, romance has always been recognized, and why? Surely because the love between the friends has been great enough to make the friends willing to lay down their lives for each other. The romantic elements of risk and adventure are there, the humdrum carefulness of self is lost in a greater and more beautiful care for one's friend. According to the height of self-forgetfulness to which a friendship can rise, the romantic element in it will depend. This giving of one's life does not necessarily mean dying; it is a higher thing to live for an ideal than to die for it—higher because more difficult, for it means the continual holding of the highway against all the assaults of worldliness, self-seeking, and the comfortable ease of acquiescence in a lower standard.

But are not many men and women totally unfit for such love and incapable of such friendship? At the present time, yes; but why should this be? Consider for a minute the way in which the majority of children have been brought up in the past, the aims which have been held up to them as worthy. Self-preservation, family preservation, country preservation in one form or another has been the teaching. "It is your duty to get on," prudence has said; "Save your own soul," has been preached as religion. Men and women brought up on this are certainly not ready for any form of romance. There must be a divine willingness to risk one's own life—to give all, whether in living or in dying, and there must be a worthy reason or impulse for it. When our children grow up realizing this they will grow up to manhood and womanhood capable of romantic love and friendship.

If either of these elements are absent we reach only a false romance. To risk one's life for a foolish or unworthy aim is foolhardiness; to fail of the supreme sacrifice when the divine reason is there, is cowardice.

Of course there are some who will say that the price to be paid for this romance is too great, that they prefer the safer paths on the level. So be it—but they must not then expect the exhilaration and the view of the hilltop.

Romance demands strength, beauty, joy. It does not understand mere money-making. It hates ugliness and dirt and disease. Is this a spirit worth cultivating or not? If it is cultivated, it cannot stop at either love or friendship. The moment romance is hedged in or narrowed in any way, it begins to die. Romance cannot be confined to the individual or the family; the going forth on adventure is part of its very essence. Romance will die out of the ties of marriage or friendship unless the two so united go forth as did Spenser's Una and Red Cross Knight to seek noble adventure, to wage war on every kind of ugliness and sin and all that takes joy from life.

In the so-called romantic ages men were found willing to risk ease and wealth and life itself in the pursuit of romantic adventure. Poets have always found inspiration in such chivalrous stories, and even in the present day all hearts thrill to the story of Captain Scott and his friends. The idea of service, of life spent or laid down in the pursuit of some unselfish aim, whether it be in the cause of art or science, or love of one's fellows, always wakens a response even in the heart of the most matter of fact or most material —up to a certain age. The old romantic name of "the

services" still clings to the Army and Navy, in spite of mere barrack-room life. The love of chivalry, the romantic instinct, dies hard, even though the desire for truth and reality is constantly causing the collapse of some beloved idol, the tearing of the veil from some beautiful illusion. But a natural instinct cannot be killed though it may lie dormant. Is it not time that we recognized the educative value of romance, the propelling power of its influence? Is there not room now for a new order of chivalry, whose knights would, as in days past, go forth to the aid of the weak and the defenceless? Are there not men and women imprisoned now in slavery as debasing as that of the giant or dragon of bygone days? Are there not children growing up in environments as hurtful as any of the dungeons of old? Are not the ugliness and feebleness and sadness born of the slum things to be contended against? Do we not want knights to call them forth from their sickness and lethargy and acquiescence in convention into God's good open air and free sunshine? Has life ever really been appraised at its true worth or seen in all its beauty? Is not the realization of this worth and beauty but the preaching in another way of the Kingdom of God on earth? Is it possible for us in this twentieth century to understand the meaning of the great adventure—"the Son of Man came to seek and to save that which was lost"? With a new enlightenment as to its meaning, are there not sons and daughters of men, filled with a new realization of the joy of loving sacrifice, ready to carry on and fulfil His work? The young have always given a ready ear and eager response to the tales and teaching of romance in the past. Will they not respond now in these latter days to the call of the new romance?

"There is no wealth but life—life including all its powers of love, of joy, of admiration. That country is the richest which nourishes the greatest number of noble and happy human beings." Only as we realize this, as we realize what the divine and eternal life should be, lived here and now on earth, will we be able to rise to communion with the eternal and divine manifest in spiritual things.

Romance may be but a humble handmaiden in the house of religion, but without her services we might well mistake religion for mere morality.

PRIZE COMPETITION.

Prizes are offered each month for the best replies to the subject set. Competitors may, if they wish, adopt a *nom de guerre*, but the name and address of winners will be published. Competitions should be posted not later than the 15th of the month, and should be addressed to the Editor of *The Educational Times*, 6 Claremont Gardens, Surbiton. As a a rule competitions should be quite short, from 100 to 500 words.

The first prize will consist of half a guinea; the second prize of a year's free subscription to *The Educational Times*. It is within the discretion of the Editor to award more than one first prize, or more than one second prize.

Subject for March.

The Best Descriptive Account of a Humorous Incident in the Class Room.

Subject for April.

The Best Definition of a Howler, with two Descriptive Examples.

THE COLLEGE OF PRECEPTORS.

MEETING OF THE COUNCIL.

A meeting of the Council was held at the College, Bloomsbury Square, W.C., on January 31. Present: Sir Philip Magnus, President, in the chair; Prof. Adams, Prof. Adamson, Dr. G. Armitage-Smith, Mr. Bain, Mr. Barlet, Rev. J. B. Blomfield, Mr. Brown, Mr. Charles, Miss Crookshank, Miss Dawes, Mr. Eagles, Mrs. Felkin, Miss Lawford, Rev. R. Lee, Mr. Longsdon, Mr. Maxwell, Mr. Pendlebury, Mr. Rawlinson, Mr. Rushbrooke, Rev. Dr. Scott, Mr. Starbuck, Mr. Vincent, and Mr. Wilson.

The Secretary reported the death of Dr. Richard Wormell, formerly President of the Council, which took place on January 6. The following letter, which had been sent by the President to Mrs. Wormell, was approved as an expression of the feeling of the Council:—

May I, on behalf of the Council and the members of the College of Preceptors, offer heartfelt sympathy in the loss you have sustained through the death of your husband. We share your sorrow; for Dr. Wormell's place in the College cannot be filled.

For more than thirty years—as a member of the Council, Vice-President, and President—Dr. Wormell took a leading part in directing the affairs of the College; and it was largely owing to his able and prudent guidance that the College was enabled to accomplish so much, and to come safely through times of stress and difficulty. During all those years Dr. Wormell rendered ungrudging service to the College, and, while his consummate ability earned the highest respect and admiration, his kindly and sympathetic nature won the warm affection of all those who were privileged to work with him.

We hope that it may prove some consolation to you to know that he lived to see the fruition of his labours, and that his name will always be held in grateful and affectionate remembrance by the Council and the members of the College.

The Secretary reported that the number of candidates who sat for the Christmas Examination of Teachers was 400—viz., 12 for the Fellowship, 95 for the Licentiateship, and 293 for the Associateship.

Diplomas were granted to those candidates who had completed their qualification at the recent examination (for list, see page 130), and also to the following:—*Licentiateship:* Bankey Behari Lal. *Associateship:* Cecil Barger Conton, Hector Sutherland Morrison, Mirza Massaud Quadr, John Rimmer.

The following letter had been received from the Honorary Secretary of the Private Schools Section of the College:—

At the Committee meeting of our section, held last Friday, I was asked to express to the Council our thanks for their action in convening the meeting in the interests of private schools on Thursday, 8th inst., at the University of London, when Dr. Sadler came to speak. We think that it proved a most successful evening, and one likely to be very useful to the cause for which it was called. We hope the Council will be assured of our appreciation of this, and of all they have done recently for the assistance of private schools.

The following resolution, which had been passed unanimously at the Annual General Meeting of the Private Schools Association on January 7, was communicated by the Chairman of Council of that Association:—

That this meeting tenders its hearty thanks to the Dean and Council of the College of Preceptors for their generous assistance in the important matter of the survey of the private schools of England.

Permission was granted to a firm of photographers to take photographs of the exterior and interior of the College building.

Mr. John Bayley was re-elected a member of the Council.

Mr. Hawe and Mr. Starbuck were appointed the representatives of the College on the Joint Scholarships Board for the year ending February 28, 1915.

The following persons were elected Members of the College:—

Mr. J. G. Anderson, B.A., Cuilrathain, Harpenden.
Mr. J. T. Cohen, B.A., Grammar School, Tottenham, N.
Mr. A. J. Freeman, M.A., LL.B., L.C.P., Callington, Cornwall.
Rev. E. T. Lea, M.A., Grammar School, Steyning, Sussex.

Mr. C. H. Swinstead, Holmwood, Cedar Road, Sutton, Surrey.
Rev. H. M. Thorpe, M.A., 93 Ashburnham Road, Willesden, N.W.
Mr. C. Walters, A.C.P., Penrhiwcaradoc Farm, Mountain Ash, Glam.

The following books had been presented to the Library since the last meeting of the Council:—

By the AUTHOR.—Gallatly's Modern Geometry of the Triangle.

By A. & C. BLACK.—Barnard's Pictures of Famous Travel; Magee and Anceau's Lectures Illustrées.

By BLACKIE & SON.—Britain and her Neighbours, Books V and VI; Boswell's Johnson's Tour to the Hebrides; Defoe's Journal of the Plague; Dyson's Selections from Thierry's Récits des Temps Mérovingiens; Gibbon's The Age of the Antonines; Herbert's Souvenirs de Madame Le Brun; Keen's De Vigny's Laurette ou Le Cachet Rouge; Ker and Cleaver's Heroes of Exploration; Latter's Progressive Précis Writing; Level and Robert-Dumas' Contes de l'Heure Présente; Macaulay's Lays; More's Utopia; Nelson's Dispatches and Letters; Walton's Complete Angler; Tomes's Teacher's Guide to Blackie's Experimental Arithmetics, Book VII.

By HACHETTE & CO.—Ceppi's French Lessons on the Direct Method.

By MACMILLAN & CO.—Cavenagh's Borrow's Wanderings in Spain; Fowler and Parr's Sertum, Book I; Hutchison's Scott's Tales of a Grandfather (Second Series); Wallis's Junior Geography of the World; Winch's Scott's Guy Mannering.

By METHUEN & CO.—Kermode and Williamson's Junior Examination Papers on the Old Testament.

By MILLS & BOON.—Walker's Examples and Test Papers in Algebra.

By the OXFORD UNIVERSITY PRESS.—Duckitt and Wragg's Selected English Letters; Glazebrook's The Layman's Old Testament; Jennings's Selected Passages on Duty to the State; Macaulay's Historical Essays, Literary Essays, Essay on the Earl of Chatham, and Essay on William Pitt; Milnes's Johnson's Life of Dryden; Morris's Prose and Poetry (1856-1870); Philip's Marie-Claire à Villevieille; Smith's The Tree of Knowledge; Tozer's Byron's Childe Harold, Canto IV; Turral's Illustrations to British History; White's Montessori Schools; Selected Poems of Wordsworth.

By the UNIVERSITY TUTORIAL PRESS.—London Matriculation Directory, January 1914 Cracknell's Junior Geometry; Hayes and Collins's Matriculation Latin Course.

Calendar of the University of Durham.
Calendar fo the University of Liverpool.
Calendar of the University of Wales.
Calendar of Queen's University, Belfast.
Calendar of the Pharmaceutical Society of Great Britain.

A CORRESPONDENT kindly sends us particulars of an alleged rogue who has been victimizing proprietors of schools, and asks us to warn our readers. The alleged rogue is at present, we believe, in the hands of the law, so we refrain from further comment.

THE report of the Committee for Appointments of Oxford University states that the number of appointments to school masterships is somewhat larger than last year, but the number of candidates willing to take teaching posts continues to decline. On the other hand, the increase in the number of business appointments filled is very noticeable, being larger by a third.

STAMMERERS IN WALES.—Swansea Town Council has negatived a recommendation of the Education Committee for compulsory teaching of Welsh in elementary schools in Welsh districts, and has appointed a committee to consider various proposals and draft a workable scheme. The opinion was generally expressed that the parents should have the benefit of a conscience clause. It was stated that there was a larger proportion of stammerers in Wales than in any other country, and this was attributed to bilingual teaching.

PROPOSED INCREASES IN THE SALARIES OF DERBY TEACHERS.—The Elementary Education Sub-Committee of the Derby Education Committee recommend that the salary of certificated assistant mistresses should be increased by annual increments of £5 instead of £3, and that the following increases should be made in maximum salaries:—Certificated assistant mistresses, an increase from £110 to £120; certificated assistant masters, from £140 to £160, and first assistant masters, from £160 to £170. The following increases in maximum salaries are recommended in the case of manual instructors:—Certificated teachers, from £140 to £160; uncertificated teachers, from £130 to £150; and assistant instructors, from £100 to £120.

THE post of Director of Music at Marlborough College, rendered vacant by the resignation of Mr. G. Dyson, who has accepted a similar position at Rugby, has been filled by the appointment of Mr. A. C. Heberden, at present Music Master at Osborne Royal Naval College.

CORRESPONDENCE.

A PLEA FOR SPELLING REFORM.

To the Editor of "The Educational Times."

SIR,—"Why should we alter our Spelling? Everyone is very content with it as it is, except, perhaps, foreigners, and I don't see why it should be altered to convenience them!" If one mentions the subject of Spelling Reform to anyone who has not previously given it any thought, it is very probable that one will elicit some such rejoinder as this. But what are the facts? The etymologists and philologists, who may be supposed to know most about the *historical* value of our present spelling, are all advocates of one which shall faithfully record the pronunciation, and the teachers, who may be supposed to know its *educational* value, are unanimous in condemning it as a brain-muddler and time-waster. People who are not teachers claim that "learning to spell" trains a child's memory and observation. If it does so, it is most assuredly at the expense of the child's reasoning faculties and ear-training. You cannot teach a child to use its reasoning powers and *think* by means of a lesson in which reason counts for nothing and everything contradicts everything else. For example, "one" and "won" are pronounced alike, but the latter has quite a different sound in "wont," and the former in "bone" and "gone"; "go" spells "go," but "do" spells "duu," and so on. Nor can you teach a child to distinguish the values of sounds by the spelling in which the same sound is represented by as many as seventeen different combinations of letters; for example, "I," "eye," "pie," "dye," "high," "height," and so on. At all events, surely the best exercises for the memory and observation are those which teach the learner to remember what he has observed in previous lessons and to reason therefrom. Again, purely and simply from an economical point of view, can we afford the time which at present has to be devoted to teaching spelling when the standard of education required for success in all walks of life becomes of necessity higher as time goes on? It is computed that a German boy or girl learns to spell his or her own language in two-thirds of the time which an English child has to devote to spelling, and he gets a sure guide to correct pronunciation in the process, which the English child does not, and the quality of spoken English suffers accordingly.

Limits of space prevent me from dealing here with other aspects of the subject, such as the Imperial one—the claim of our fellow subjects in India and elsewhere to an easier access to the official language of the Empire—and the immense benefits which would accrue to British trade, and, as the writer believes, to the cause of International goodwill, from a more rapid spread of English all over the world.

Those interested in the movement for reform I would refer to the Simplified Speling Sosieti at 44 Great Russell Street, London, W.C., where full particulars and literature dealing with the subject may be obtained. It is a most interesting reform, yet in its infancy, and one which has been advocated by many celebrated scholars of past generations—Lord Lytton, Mr. Gladstone, Prof. Max Müller, Prof. Skeat, and Dr. Furnivall, to mention only a few.—Yours faithfully,

ANDREW BRODRICK.

77 Mount Road, Birkenhead.
February 6, 1914.

THE readers of the mathematical columns will receive with sincere regret news of the sudden death at Boscombe, from heart failure, of Mr. William Gallatly, M.A. His name is a very familiar one to our own contributors and to those of various periodicals devoted entirely to mathematics. His work is known most intimately by those interested in the researches connected with the subject of modern geometry. A scholar of Pembroke College, Mr. Gallatly obtained his University training and his M.A. degree at the University of Cambridge. He was both an author and a compiler of works on mathematical subjects, and last year saw the publication of the second (enlarged and carefully revised) edition of his "Modern Geometry of the Triangle."

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By H. Macnaughton-Jones, M.D., M.Ch., M.A.O., F.R.C.S. I. & Edin.

There are so many important problems connected with the subject of ambidexterity which call for serious consideration on the part of all parents and teachers that it cannot be remiss to draw attention to them in a journal the special province of which is to deal with the entire question of education generally.

In the past, the fact has not been sufficiently realized that manipulative exercises, involving various muscular movements, in which the senses of sight and touch take an active part, are intimately associated with the higher mental processes.

This is more especially seen in those acts which are ever making fresh demands on the mental faculties of ideation, conception, comparison, and attention. Every stroke of the artist's brush in giving expression to the face he is painting, or life to the scene he depicts; every line drawn by the steel of the engraver, or the pencil of the draftsman, to impart beauty of proportion and delicacy in structure; each touch of the sculptor's chisel delineating physical strength in a limb, beauty of form in a feature, grace of movement in the body; every ink mark of the writer as he transmits his thoughts to paper, weaving his romance or elaborating his scientific deduction—in each and all psycho-muscular movement is the inseparable twin force that often automatically is brought into play.

And in the execution of feats of skill, or even in the discharge of routine duties which involve concentration of thought and unceasing attention to detail, the same association of mental impulse and muscular action is apparent. The airman "looping the loop"; the chauffeur with his hand on the brake of the mile-a-minute motor car; the engine driver controlling the valves of the flying express, and the signalman ever on the alert and ready for danger; the pugilist and swordsman in their attack and defence; the marksman in accurate adjustment of sight range and touch

of trigger; and, last though not the least example, the surgeon in every delicate manipulation, a single slip or oversight in which may mean a human life—all are instances of musculo-motor affinity with mental impulse and action.

Let us briefly inquire into the anatomical, physiological, and psychological facts which explain this relationship. I have fully entered into these elsewhere,* so it must suffice here simply to enumerate them, and to state their bearing on this subject. In the discharge of mental and physical action the brain is a dual organ, with right and left hemispheres. Each collaborates with each, and is also capable of acting under certain conditions as a substitute for the other. Special centres in both the hemispheres provide for this individual, alternating, or simultaneous action. The left hemisphere has its centre, which, by decussation of the threads of communication that issue from it, governs the right side of the body, and the right has its corresponding centre that governs the left. Block either centre by disease or injury, and paralysis of the opposite side is the result. Habitually neglect either, or let it fall into partial disuse, and there is deterioration of its psychic power and psycho-motor influence.

There is a fair analogy to be drawn between muscular development in strength and skill, and the acquisition by the brain of mental power and intelligence. Co-ordination in thought and movement is dependent upon the impulses which arise in those centres from which issue the mandates of the will. They are co-partners in the directorate. Exercise, use, and training of any special set of muscles increase the facility with which difficult movements are accomplished, and the muscular adaptability to the demand made. There is no better example than that we see in the marvellous execution required in the rendering of a difficult musical piece, either on the piano or violin. Automatically, and with lightning rapidity, the fingers of both hands move to the ever-varying changes of note and tone which comprise the melody. Innumerable and complex acquisitions are simultaneously responded to by the muscular sense and verified by the ear.

As with the physical, so with the psychical development; response to the constant call for the issue of new impulses, and sustained effort in maintaining the equilibrium that is needful for the harmonious relation of mental to physical energy, bring into play all the mental faculties, strengthening and widening the powers of each. Thus it comes to pass that "the infinite capacity for taking pains" is often mistaken for true genius.

The speech and writing centre in each hemisphere originates and issues impulses which control movement in the muscles of the tongue and upper and lower extremities. These impulses convey their mandates by fibres which pass to these muscles. We may for our purpose imagine a central electric-supply station in each hemisphere which receives and transmits messages to the various exchanges, and these in turn forward the message to the particular muscle which is called up to respond. In the nervous machinery there is a constant give and take in demand and supply. The generating force must always be sufficient to meet the infinite complexity of the demands which are ever being made upon it. The plan of Nature for arriving at this adjustment is perfect. Having to meet the needs of two vast districts, she so arranges that there shall be means of communication between the central stations, and that the lines issuing from each shall cross in the main trunk, so as to supply opposite tracts of territory. Further, that in case the supply runs short, or the machinery is out of order in one centre, the other can carry on the communications.

Yet, while there is mutual action, there is complete independence. Every movement of the *right* arm is directly associated with an impulse from the *left* hemisphere, and that of the *left* arm from the *right*. The dual supply of the tongue is ever in co-operation.

The various theories as to why the first preference was given to the right hand, to the comparative neglect of the left, cannot be touched upon here. I have elsewhere referred to these. We have to realize that from time immemorial in the great majority of the race that preference has existed. The right hand has been glorified and the left depreciated. Consequently, ages of disuse have led to inferiority in functional aptitude, and this neglect has been attended by corresponding disuse of its cerebral centre of supply. This neglect has been practically universal. The Scythians, among the ancients, and the Japanese and Persians in more modern times, have been foremost among the exceptions.

Writing is visible speech, and involves in the transmission of conceptions and ideas to paper all the highest powers of the mind. Drawing, etching, painting, sculpture, are the visible reflections of what the brain of the artist has whispered to the hand that directs the pencil, steel, brush, or tool. We know that in a fairly constant though comparatively small proportion of people the preference is not for the right, but for the left hand. Heredity plays a part in this. And there have been notable instances in the arts in which both hands have been used with equal facility and dexterity, or even simultaneously. The all-round master artist of any period, Leonardo da Vinci, was ambidextrous, and our own Landseer could at the same time draw perfectly a stag's head and horns with one hand and a horse's head with the other.

Mr. Jackson, in his work on Ambidexterity,* has shown by several illustrations the rapidity with which the child can be taught to use the left hand equally with the right, both in writing and drawing. He has also given illustrations of some marvellous examples of both simultaneous writing and drawing. This capacity on the part of a child is equally shown in other forms of manipulative work, and I have given examples of exceedingly fine work executed by a lady who was born with only one hand, and that the left.

This fact, however, has to be remembered, for it is one that cannot be too strongly insisted upon and pressed home to parents and teachers—namely, that some children are incapable of learning the equal use of the left, as others are of the right hand. It is both useless and cruel to try to force children to do that which by nature they are incapable of doing. Instruction which has not this triple foundation—ascertainment of individual aptitude, encouragement, and example, is fundamentally wrong, and is responsible for the blighting of countless lives and the wrecking of what might have been brilliant careers. Intimately associated with these in the building of the future character are the adjuncts of disposition and temperament. The psycho-physical architect has to utilize to the best of his ability the material he has to hand. As in our English architecture, in the attempts we see all around us to mingle the true material and the false, the real with the imitative, in form, style, and appearance, we see the result in misshapen, incongruous, unsuitable structures, so, in the human edifice, this same want of discrimination in correct utilization of the material at our disposal gives us men and women aiming at positions and following occupations for which they are utterly unsuited. When the mental architect hands the building over for occupation, it is out of keeping with its environment and its owner's calling. At the end of life that owner finds himself a failure.

Certain facts stand out prominently with regard to ambidexterity. The education of the left hand is also an education of the otherwise neglected right brain centre for speech and writing. When there has been disease of the left centre, and thereby the power of speech has been lost, and the right hand rendered useless, the right centre, through exercise of the left hand, has enabled the sufferer to continue his work. And in cases in which accident or injury has occurred, the injured person, by the use of the left hand, has gradually regained both the power of speech and writing.

An aphasic person who is unable to speak, or to write with the right hand, will, if ambidextrous, convey his wants or carry on conversation in writing with the left, the cerebral understudy taking the place of the principal actor. The same advantage follows in the case of an injury to the right hand. The characters of Lord Nelson's writing before and after he lost his right arm are widely known. Sir Baden Powell on one occasion, when his right hand had been rendered useless by a dog bite, continued throughout the manœuvres he was conducting to send in all his reports, illustrating these with sketches and maps. He maintains that many military exercises in riding, shooting, and use of the lance require that the thoroughly trained soldier should use

* "Ambidexterity and Mental Culture." Heinemann, 2s. 6d. net.

* "Ambidexterity," by J. Jackson. Kegan Paul.

his left hand equally with his right. In almost every manual occupation the advantage is on the side of the ambidextrous worker.

Nor does facility in the use of the left hand affect the powers of the right. On the contrary, by the simultaneous use of both brain centres it increases these. Mr. Jackson instances no less than five hundred occupations in which the ambidextrous worker has the advantage.

There is one gain to the child which is inseparable from the training in ambidexterity. There are three words in the language which, in all the principles that are directly and indirectly involved in their meaning and applications, are the most important to keep ever before his mind. These are God, love, effort. If ever a man had a claim to have his name graven amongst the Immortals on the roll of fame, that man was Louis Pasteur. The extent of the debt humanity owes to him no pen can adequately tell. His motto was "Perseverance in Effort," and his character may be summed up in these few words: childlike belief in God, love of his kind to the sacrifice of life itself, and never-ceasing effort to accomplish the end he had in view—the saving of life and the alleviation of suffering. We are obeying the first principle of all life when we inculcate the need for effort. Start where we will in our attempt to unravel its mystery, we find that struggle meets us in its first beginning.

Dissatisfaction and Effort are the two steeds that drive the chariot of Progress. All education has for its main object incitement to effort. When we teach the child to write with his left hand, or simultaneously with both, until, as in the instance Mr. Jackson shows, he can write the Lord's Prayer with one hand and the Creed with the other, or, like Landseer draw two different objects at the same time, we are encouraging and developing the very first element of success in life. This applies also to other exercises in which facility in the use of the left hand, and of both simultaneously, is learned. In various games also the expert player often finds that his superiority lies in the facility with which he uses both hands.

The root of the Montessori method of education is found in the encouragement by the teacher of the voluntary effort on the part of the child to learn through the education of the senses. Through the accumulated experiences gained by the acquisition of each sense separately, a harmonious interaction with their respective brain centres is arrived at. The sense educates the child in the first instance rather than the child the sense. It is unnecessary to indicate how ambidextrous training has its place here, and why it should become an essential in the development and completion of the system.

In all modern gymnastic and hygienic movements both arms and hands play an equal part. In the Eurhythmics of Jaques Dalcroze we see perfectly exemplified the harmonious interpretation of sound vibration by muscular movement. Here it is the hearing centre which is brought into touch with psycho-motor activity. Music, as it interprets feelings and emotions, stirs infinite acquisitions in the brain of the composer or performer. These are reflected in that of the listener. The Dalcroze movements are used to link these together, so as to give the general effect in time and expression, and the various attitudes and automatic movements are employed to teach the pupil the need for rhythmic regularity in tone and cadence.

Such psycho-motor associated impulses involve the communications from both sides of the body, and either independently or simultaneously stir the activity of the hearing centre. This mutual co-operation of the hearing centre and muscle movement is what we aim at in the education of both hands in the case of the two speech and writing centres.

In typing or writing shorthand to dictation, the hearing centre is working in harmony with the sight and speech centres. The typist brings into action simultaneously the senses of sight, hearing, and touch. All three are manifest in the visible copy.

In "Ambidexterity and Mental Culture" I have entered more fully on several points touched upon in this article, which has been written at the courteous invitation of the editor. Since this book has appeared, I have had many letters referring to the subject, and several of the writers have expressed the same regret—that they were not trained in childhood to an equal use of both hands.

THE KINEMATOGRAPHIC APPEAL TO THE EYE IN GEOGRAPHY.

By Prof. L. W. Lyde.

Recent developments with the kinema recall to mind the Kinematograph Conference of 1913. It deserved more than passing notice even then, if only on account of the determined attempt to impose the kinematograph on us as the latest educational nostrum. In this respect, for many of us, it brought to a climax all our growing suspicions of the Appeal-to-the-Eye movement. Personally, for the last ten or twelve years I have found myself developing more and more antagonism to what has seemed to me a growing tendency in education to over-emphasize this appeal to the eye. And, as a profound disbeliever in all political forms except a pure democracy based on the wisest and the widest education that the age can give, I deeply regretted the small attendance at the History and Geography Meeting of the Conference. I should have liked to see there every teacher who was being tempted, or pressed, to have recourse to the kinematograph even "once a week or once a fortnight," as we were advised.

I am particularly anxious not to introduce here any complications based on the quality of the films displayed in any local theatres or the attendant circumstances of their exhibition. On the contrary, I should like to assume that the selection of films is beyond all cavil; that the atmosphere in the theatres is relatively pure, and every theatre disinfected after every performance; that no exhibition is given at hours when children ought to be in bed; that every child attending school regularly can have free admission to special theatres, so that there may no longer be any temptation to filch the price of admission; and that in these theatres there must be sufficient oral criticism and questioning to prevent the evasion of all mental effort on the part of the children. The mere fact that—*e.g.* at Leeds and other places—there has been an enormous increase of "juvenile crime" recently, and that the crimes are precisely those illustrated by the local theatres, is—from my present point of view—of no importance. For small machines, with non-inflammable films, can now be procured at a non-prohibitive cost; and, therfore, in the very near future children will be able to get all the asserted advantages of the nostrum without any of the admitted present disadvantages. Let us assume, then, ideal conditions possible!

Nor do I wish to minimize in any way the power of the kinematograph. The mere fact that the pictures do "move" gives them an irresistible attraction; and, apart from any question of attraction, they have the advantage of isolating any "unit" from its context or environment in such a way that it at once acquires special significance, and of presenting that significance to us with an immense economy of time and mental effort—supposing that to be a real advantage, which I doubt. Thus, without expenditure of much money or time or trouble, without distracting detail or irrelevancy, without danger or discomfort, we can watch, *e.g.*, the *real* movements of wild animals or the pressure of flood against a river-bank. We can even follow, condensed into a minimum of time, processes which are much too long to be conveniently watched in Nature—*e.g.* the opening of a flower or the evolution of a silk-worm. More important still, from the geographic point of view, we can watch what people were doing at midday at any given time of the year all over the world, thus getting *first-hand* evidence of, *e.g.*, climatic phenomena, racial occupations, and so on.

I would venture to say that this "living" reproduction of contemporary fact is the only service which I can conceive of the kinematograph doing to the teaching of history. At the Conference we were shown only so-called historical

films; and they were as pestilential educationally as they were grotesque historically. No one could mistake them either for art or for representations of fact. A normal child might have been interested in them from curiosity; but there could not have been any healthy, still less any useful, illusion.

Assuming, then, that the kinematograph can give us something which appears to be what we want, can it give us the thing in a satisfactory way? The answer, from the geographical point of view, is—I venture to say—*No!* What we want in school geography is to train the outlook faculty, not simply to supply it with pictures. No one who is interested in geography can have failed to be impressed by the inability of Man to make progress in the Tropics; and there is no question as to one main cause for this. Nature has done too much for him, and so Man has done too little for himself; and this seems to be only too true in relation to such an appeal to the eye as is offered by the kinematograph. For, if too much is done for the physical eye, too little will be done by the mental eye.

This is specially the case when the appeal to the eye is made in such a way and under such conditions as to monopolize and intrude. That is a most objectionable form of forcible feeding. Its supporters urge that it is intended to cure a mental disease. But forcible feeding is not a cure for mental disease; and, on the other hand, for the disease in question there is a sound geographic cure—associated with what Lord Robert Cecil might call "land forms beyond the horizon." Personally I would infinitely prefer a boy to have an incomplete picture built up in his mind by the vigorous activities of his own imagination rather than one elaborately complete, but only pinned to his brain, so to speak, by an ingenious machine of which he had neither control nor understanding.

The essential thing for young students of geography is to observe, not merely to look at. This observation is to be out of doors, direct, organized, continuous. There is no time limit at all; still less is a passing glance sufficient. The boy must go on observing the little plain or plateau or pond until he is able to reproduce it afterwards, indoors during the modelling hour, from his mental picture of it. He thus learns how to form a mental picture of what is within his horizon, and what he professes to have observed. While he is modelling this observed land-form—*e.g.* a plateau—you tell him appropriate "stories" about some similar land-form which is a great world-feature—*e.g.* Tibet. He thus learns to associate his mental picture of what is within his horizon with one of the great world prototypes which are beyond, and for most boys will always remain beyond, his horizon.

In other words, the kinema may be of infinite use to a teacher of geography to confirm or correct his own descriptions of foreign lands; but it is worse than useless, it is positively pernicious, to the child. The latter must learn to make the mental picture, and the teacher must be able in the first place to test that picture. The child can make the picture only from his own direct first-hand observation, and you can test the efficiency of that by making him reproduce, from the mental picture, what he professes to have observed. If he can do this then you may trust him to picture truly—from your descriptions—what is beyond the reach of direct observation. If he can do so, geography has enabled him to fit himself for useful citizenship. For what our Imperial democracy lacks more than anything else is the power of visualizing, the power of looking all round facts, the power of seeing things from the point of view of other people. And we always suffer at home, and we sometimes rule badly abroad, because of this imperfect outlook—*i.e.* our imperfect training in the real geographic process. This imperfection of outlook makes us lack the bond of real sympathy at home and the insight of real sympathy abroad. And until the child has learnt to make true mental pictures from definitely observed phenomena, "bladder-swimming" substitutes such as the kinema will only hinder his development and cramp his power as boy and scholar or as man and citizen.

THE PROGRESS OF WOMEN'S EDUCATION.

By Constance L. Maynard, late Mistress of Westfield College.

The latter half of the nineteenth century accomplished many revolutions, from the capture of our radiant servant, Electricity, to the widespread results of the Education Acts of 1870, but among them all one of the most important and least obtrusive was the offer to English women of a sound education. Never was a deep and genuine transformation of thousands of human destinies accomplished with less noise, never was fire with less smoke. The more we think of it, the more wonderful is the retrospect offered for our review, and I personally have lived and worked in the midst of it all. The old barriers were cramping, and seemed to be formed of the masonry of ages past, but the long pent-up floods of energy have been let loose into a score of new channels, and remarkably little damage has been done to the plantations on the way. Here and there a girl, breaking through the old restraints of feminine diffidence and dependence, with its blushes and smiles and tears, has failed to find for herself a new barrier in the right place; perhaps a fantastic change of dress, perhaps a demand for the use of the latch-key or the disuse of the chaperone has brought discredit on a good cause. But, taken as a whole, no revolution has ever been marked by more moderation, and this quietness and self-discipline remains for ever as a proof of the fresh strength, the robust home-loving goodness of our English girls. The greenhouse in which so many had led their quiet lives was broken through, but the unsheltered plants quickly acclimatized themselves to the natural course of the seasons. "'Tis in grain, sir, 'twill endure wind and weather!"

Let me say at the outset that I am a thorough conservative at heart. This word, in my present use of it, has not a shade of political or even social intention, but means that I love the old fashioned virtues and amenities, that I find a sweet fragrance in old-world culture, and that, in spite of all changes, I recognize some of the highest types of beauty in cramped and modest lives, and in narrow views of religion. Innovations whether in faith, duty, speech, or courtesy, are to me often subjects of pain, and if I can bear testimony that the change on the whole is toward good, I think even the most timid may take courage. We are put into the world to "serve our generation," and this implies discernment of its strong points as well as of its defects, and we are not put into the world to complain of our generation with the iterated and mournful cry, "It was not so when I was young."

The tuition of the Early Victorian schoolroom was a poor and scanty thing. No blackboard, no charts, no models, no object lessons, no explanation of the subjects the children were to learn, were found there. Our lessons were "heard," and a little pencil mark on the page showed where the next day's work was to end; whether History, Arithmetic, or any other subject, the method was always the same. The strain was laid on memory and perseverance only, and neither reason nor imagination was summoned to co-operate. What education we had was outside the schoolroom, and due entirely to the influence of our mother, whose intellectual tastes and powers of inspiration were remarkable, and who wrestled successfully in our play hours with the authorized dullness of the schoolroom. New arts, new languages, new glimpses into the wondrous world of science, were ours; everything was surrounded with a charm as though we ourselves were explorers. Nothing was finished, but interest was excited in a score of directions, so that we became good listeners and good readers. It was from the atmosphere of such a home that in 1872 I plunged into Girton, which was at that time three years old, and the impact of the new world of thought on the delicate seclusion of the old world began to be felt at once.

But let me leave the personal recollections, and try to point out what seem to me to be the essential gains, intellectual and ethical, that have been brought to English women by a College education.

Homes such as mine were rare and always will be rare, but schoolrooms such as mine were almost universal in their dull, unremitting demand on the memory, and it is easy to see and praise the intellectual advance since those days. In January, 1873, the first High Schools were established, and these soon supplied the Colleges with students more conversant with the subjects demanded, and the Colleges in turn supplied the schools with a higher type of teacher. In slowly and steadily widening circles the fresh impetus spread outward as new ambitions were felt and realized. Books of a more solid kind were demanded from the libraries, magazines for women adopted a more public and disinterested tone, and Browning Societies, Shakespeare readings and Debates began to be organized here and there among girls and the younger married women. When we think of the petty and trifling interests these things superseded, the gain is obvious.

But by far the most important thing is the ethical aspect of the movement, the change wrought, not in the stores amassed, but in the collector and keeper of those stores. Let us try to sum up the gains.

Before we can judge of the value of a cure, we must note the features of the disease or weakness from which it is the happy release, and already the cramped conditions of the past are only too rapidly fading from our memories. It was not a good life for the many, the Early Victorian. For the favoured few it was beautiful. Read "The Gurneys of Earlham," "Two Noble Lives," "Mrs. Schimmelpenninck," and a score of such biographies, and see how beautiful it could be, and even outside the ranks of the highest cultivation, there might be found a few "schöne Seelen," delicate of taste, submissive of will, ignorant of the main evils of life and perfectly silent about the little they did know, exhaling a fragrance of old-world sweetness such as it is hard to find now. Looking at lives such as these we may begin to think that we must discount our gains, but for all this they are very great gains.

Turn now and look at the lives of the many. Thousands of girls were growing up in our pleasant country homes without enough to do, and in an atmosphere highly artificial. The clash of life was denied them, the exertion of the judgment was of no use, since opinions were offered them by Society ready made, strong enthusiasms were considered a little unseemly, and (if the parents could contrive it) the daughters were saved from even touching the hard corners of the world, or thinking of its cruel realities. In the Middle Ages the lady of the castle sang to her lute, worked tapestry, and knelt in her chapel, while her lord's captives rotted in the dungeon immediately below her feet. It was the same again on a wider scale. Before a woman's eyes evil was not to be conquered or remedied, but simply to be thrust out of sight.

Now human nature is a living thing, and it will find directions in which to expand, and if protective kindness denies the greater things of life, it will take to the smaller. Prejudices grew up and waxed mighty; strong feelings were spent in youth on small issues, and then as age drew on there came a kind of withering of the whole nature. There was no running out into dissipation and vice as there might be in the corresponding man, but the women stayed in their orderly and often pleasant life, and withered away on the stalk. The sweet blossom of youth bore no fruit at all. Fears of various small kinds took possession; fears of mice and of cows, fears of being alone, and fears of many other sorts where no fear is. The cheerful talk became empty gossip, endless curiosity about trifles in the lives of their neighbours, perhaps made more interesting by a hint of detraction and disgrace. Everything touched on, even things of kindly intent, became paltry, and the life closed as the very picture of insignificance.

Is this too severe a sketch? The maiden to start with is generally sweet and sometimes strong, and it is the fault of her circumstances rather than herself if this miserable end is reached. One redeeming light, the sunshine of Christianity, has shone steadily through this poverty of twilight, and those who for Christ's sake have given themselves to distress and suffering have showed like stars amid the dimness. Even if I pass over the splendid band of women of older days, and confine myself to those who have breathed the same air with me (nearly every one of them I have seen, and some of them have been my friends) the sight is a beautiful one. The pioneers of nursing, Florence Nightingale, sweet Agnes Jones, and brave Sister Dora; the true hero, Josephine Butler; the helpers of the utterly degraded, Mrs. Ranyard and Mrs. Bayley; the persuaders to righteousness, Mrs. Catherine Booth, Mrs. Pennefather, and Miss Marsh; the sailor's friend, Miss Weston, and those who have raised the lives of our soldiers at home and abroad; and for each leader (and many more might be mentioned even among those who have crossed my path) there were, perhaps, a thousand of the more obscure whose names are known and honoured only in Heaven. Here was a crusade offered in which life might be worthily laid down, here was an outlet beyond the fireside, scope for the exertion of heroic forces, a path of limitless patience. This is the Cloister in its permanent and ideal form, this is devotion permeating all life.

But the Cloister can never be the vocation of the majority; and we return to the ordinary girl of leisure in the pleasant home. Powers unused become unusable, and the judgment that is allowed no exercise is not respected, because it is not worthy of respect. In this way is formed the timid and garrulous old maid, or the mother incapable of following her children beyond infancy; excellent so long as the body is supreme, but content to lose hold on her flock one by one, just when the character and tastes are forming. This is no true motherhood.

Let us now endeavour to describe what College has done for us as a remedy for all these evils. School life naturally ends at eighteen, and all education that comes after that age may be classed together as "College." Foremost stand the University Colleges, but beside these we find Medical and Hospital training, the Teachers' and Kindergarten courses, Political Economy, Secretarial and Commercial instruction, Hygiene, Agriculture, Art, Music, Physical training, Domestic science, and a swarm of other employments, each one involving good hard work, and tending to develop independence of character.

And what are the ethical elements of the College education to which we owe so much? People say that a community of women does not thrive, but becomes full of friction and bickerings. For idle women this is abundantly true, but for College students engaged in their work, it is emphatically not so. In idleness of spade and rake plenty of weeds spring up, but industry is a wonderful helper toward all that is good. The presence of a great object that demands interest and controls effort is protection enough against the evils to be feared. Moreover, I would say that in a resident College the community should not be so large that the influence of the Principal and staff cannot be deeply felt by each individual student. Men may possibly thrive in large numbers, but women do not. By no means must the differences and restraints of social life be lost, but, when College life is rightly ruled, the courtesies grow and flourish.

I speak of the ideal College, and would like to place before my readers the "ought to be" and the "might be" rather than the "is." And yet there is not a single feature in the sketch which I shall present that is not taken from life, not one detail that has not been abundantly realized.

Perhaps the first and foremost thing learned is public spirit. Even to the best of women this often presents a difficulty, because there is hardly any scope for it in the home, where every interest is of an individual nature. The good girl will do almost anything for love, and the "Thanks awfully" of the brother, and "That's a real help" from the parent, is reward enough. But there is no equivalent in

College life. "As ungrateful as a republic," say the French. Respect for the helper and leader is, of course, built up as time goes on, and at last brings in a full reward, but this is not the kind of effort natural to a woman. For the sake of the individual she can be wholly selfless, but she needs practice to become disinterested for the sake of the many. Such a training adds the width and magnanimity she often lacks.

Another important point gained is that of a sheltered period for slow and firm growth. For my part I love to see a girl still a child at eighteen, guided by the judgment of her parents, and referring to them for a decision, but at twenty-three she should have opinions of her own, for no generation can take shelter behind another. Affection and loyalty may make one hide every sign of divergence till long after this age, and indeed for the whole of life, but never again can there be real dependence. For the parents to demand it, is an insult to the next generation. They have had their turn of the opportunity to mould taste and principle, and now friend must talk with less experienced friend. For the child this transition "from the glad safe rear to the dreadful van" is of supreme importance, and time must be allowed for expansion of the sympathies and strengthening of the judgment. The respected solitude of the little study, the pleasant companionship in the dining-hall or during the long walk, the discussion of serious subjects in the Debates, and above all the gentle continuous pressure of real scholarly work, hour by hour, and day by day, these form the best environment we know for the growth and maturing of the young soul.

Again, we learn toleration. A girl is a fastidious and conservative being, who early absorbs systematic prejudices as to what is "the right thing to do." Members of different grades of society, of different Churches, perhaps of different nations, are all on a level at College, and the true nobility of the spirit has the opportunity to show itself without adventitious support. At first some of us look on with wonder and, perhaps, with dislike; then comes toleration, and then, more than toleration, appreciation. To an open mind and a generous heart, the lessons learned in even a single year of College life are invaluable and indelible.

Also we learn courage. At home principles slide along accustomed grooves and under full approbation, but at College they are set free and tested amid cross-currents. To learn to listen, to speak clearly, and then to listen again, does not sound as though it were a hard task, but often it is so for a woman. The bud of conviction opened and nursed in shelter must be tested by adverse winds and pelting rain, or it has little worth.

There are other gains too, but these are the most obvious. To concentrate intellectual effort for three years on one definite end, to stand together in free comradeship, to lay the basis here and there of a lifelong friendship, to learn scarcely conscious lessons of sympathy with others who differ and differ widely, and yet to hold the more firmly and openly to the central constructive principles of faith and duty, such is the ideal of College life. This is scarcely the place to speak of the labours of the Principal and Staff, labours all-permeating and invaluable, without which the College is robbed of its power to train and guide; nor is it the place to speak of the Students' Christian Union, that wondrous "growing point" of the spiritual life of the world, that brings forth new shoots year after year. In fact, the more I write the more I am conscious of the depths that cannot be written about. Leaves and blossoms are discussed and classified by Botany, but the central core of life from which the whole plant grows is a thing apart, and is hidden. Every institution which deals with the human character must have behind it devotion and sacrifice, or nothing permanently good is attained. Evil attends every widespread movement, and there is need of constant vigilance, but in the transition from the old world to the new, of which I have here attempted an outline, the good preponderates in large measure. We may take courage. The first steps are well and firmly laid, and we may safely go on to greater things.

HOW FAR IS CO-EDUCATION DESIRABLE?

EXPLANATORY NOTE.

The following paper was drawn up and sent to about a thousand of the principal educationists of the United States, during my visit to North America, 1906 to 1908. As there is again some considerable discussion on co-education going on in England, owing largely to the Feminist Movement, this *questionnaire* may be of public interest.

Abbotsholme, *February* 14, 1914. Cecil Reddie.

Please be extremely precise as to ages. Some people do not distinguish, for instance, "five years old" from "in the fifth year."

In all cases it is understood that the normal or typical boy or girl is in view, not the exceptional or abnormal.

At the present time (1907) no question, perhaps, is causing so much discussion, not only in the United States, but also in all the most important countries of Europe, as the question of co-education.

During a recent tour of eleven months in the States and in Canada, following a couple of months' tour in Russia and Poland, the writer has found this question one of the foremost everywhere, but opinions as to the value of co-education very varied. Indeed the problem is not so simple as some imagine; consequently, it seems desirable to try and bring together, within a small compass, as full a statement as possible of the whole question. For this it is indispensable to have the co-operation of representatives of all possible views on the subject. It is, therefore, hoped that those who receive this set of questions will be willing to assist in this important investigation, and will, either alone, or with the co-operation of friends whom they know to have special knowledge, reply as fully, and as speedily, as possible.

The writer, having come from England to study education in North America, is particularly anxious to report on co-education which is especially characteristic of this country. Last year, while lecturing on Education at Lemberg and Warsaw, he discovered a widespread, and intense, interest in this question among the Poles, who were just engaged in reorganizing education in Russian Poland under the new Ukase. Any conclusions arrived at—if sufficiently well supported—will doubtless influence many countries besides England.

The writer would be glad if contributors would kindly indicate their wishes as to their names appearing in connexion with their views or as to anonymity. In questions of this sort people do not always care for publicity. Any wishes of this kind will be scrupulously followed.

Cecil Reddie,
Head Master of Abbotsholme School, England.

October 1, 1907.

By the courtesy of President G. Stanley Hall, replies may be addressed to Dr. Reddie, c.o. Clark University Library, Worcester, Mass.

1. Are you a supporter of co-education (in principle, leaving aside details as to methods of realizing the principle) for boys and girls up to the end of the third, seventh, eleventh, fourteenth, eighteenth, or twenty-second year of life? If the above years have no special significance in your eyes, state here within what ages (ends of what years of life) you wish it?

2. Do you desire, within the periods you have indicated, complete co-education; that is, that the boys and girls should join in all classes and occupations? If not, which subjects of study or occupations do you wish them to have in common? To save time, strike out, in the following list, all activities you do not wish them to follow together—but where you favour co-education, write upon each word the ages (ends of years) within which you would allow co-education in that subject. *Physical Training:* Kindergarten games, military drill, Swedish (or German) gymnastics, swimming, football, baseball, basketball, hockey, cricket, golf, tennis, rackets, athletic sports (e.g., running, high-jump, long-jump). *Speech Training:* Voice-production, articulation, pronunciation, reading, reciting, acting (dramatic), debates. *Music:* Singing, piano, violin, &c. Organ, theory-of-music, dancing. *Arts:* Drawing, painting, modelling, carving, theory-of-art, design. *Crafts:* Geometrical (mechanical) drawing, working in wood, copper, brass, iron; forging, engineering, bookbinding, printing, weaving, sewing, cooking, domestic science,

household arts. *Linguistics:* English, French, German, Spanish, Italian, Russian, Latin, Greek, Hebrew. Conversation, composition, grammar, literature. *Natural Sciences:* Hygiene, psychology, physiology, zoology, botany, chemistry, physics, geology, physiography, astronomy, geography, history, economics, ethics, æsthetics, philosophy, metaphysics, religion, mathematics.

3. Outside the classrooms and class-hours should boys and girls be encouraged (i) to mix freely? (ii) to keep apart? or be left unadvised as to this?

4. Do you believe in any degree of self-government by the pupils? If so, should any self-government be (i) by one committee of both sexes? or (ii) by two separate committees, one for girls and one for boys? If so, should the boys be managed (iii) by a committee of girls? or (iv) by a committee of boys? And should the girls be managed (v) by a committee of girls? or (vi) by a committee of boys?

5. Should a school require equal numbers of boys and girls to attend, or should any particular proportion between boys and girls be required, or should there be no restriction whatever as to proportions?

6. Should there be equal numbers of each sex in each class, or limits to the inequality in numbers, or no limits whatever?

7. Should there be both men and women teachers in co-educational schools? If so, should they be in equal numbers? If not, should there be any limits as to the inequality in numbers, or no limits whatever?

8. Where boys and girls attend separate schools (i) should boys have: only male, or only female, teachers; or both? If both, in what proportion men to women? (ii) should girls have: only male, or only female, teachers; or both? If both, in what proportion men to women?

9. Should the Principal of a boys', or girls', or co-educational school be man or woman? or should there be two, one man and one woman (i) in a boys' school? (ii) in a girls' school? (iii) in a co-educational school?

10. Do you favour the day school or the boarding school? State between which ages (ends of years) you favour one or other.

11. Assuming that co-education is, in your view, generally desirable, should also boarding schools be co-educational? If so, (i) should girls and boys live in separate houses, using in common only classrooms, laboratories, &c., and dining-hall, concert-room, chapel, &c.? or (ii) should girls and boys reside in the same house? If so, should they be allowed to mix exactly as in the ordinary normal healthy home, or how?

12. Do you think any difference in the treatment of children, as regards intercourse between boys and girls, is necessitated by (i) their numbers being large? (ii) their numbers being small? If so, what difference, and why?

13. What effect has the presence of many girls on a few boys and *vice versa?* Can you explain this?

14. It is stated by some observers (i) that, where boys and girls are in separate classes (although in the same school), both the boys and the girls seem brighter and more alert, especially the boys. Have you noticed this? (ii) that, where they are together, both appear duller, especially the boys. Have you noticed this? If so, the boys would appear to be more affected by the girls than the girls by the boys. If this is the case, how do you explain it?

15. What are the particular advantages you see in co-education (i) for the boy? (ii) for the girl?

16. What are the particular disadvantages you see in co-education (i) for the boy? (ii) for the girl?

17. Have you ever observed among teachers some who can teach only boys, some only girls, and some both boys and girls equally well? If so, is this frequently the case?

18. Do you think that a boy should have (i) only, or (ii) chiefly a masculine education, explaining what you mean by that? Do you think that a girl should have (i) only, or (ii) chiefly a feminine education, explaining what you mean by that?

19. What are the distinctive physical, mental, æsthetic, and moral characteristics (i) of the boy? (ii) of the girl?

20. Do you think that every boy has also in him all, or some, of the latent powers of the girl? If so, should these be suppressed, ignored, or developed, and to what extent? Do you think that every girl has also in her all, or some, of the latent powers of the boy? If so, should these be suppressed, ignored, or developed, and to what extent?

21. Is the end of evolution, and the ideal of human development (i) to produce men and women more and more polarized, that is, unlike each other, or (ii) to produce men and women more and more approximating to a kind of mixed type?

22. Is marriage or celibacy the higher ideal (i) for man, (ii) for woman?

23. Should education be entirely in the hands of celibates, as is nearly the case in the United States, both in the Elementary and High Schools, and is entirely the case in Roman Catholic Schools?

24. Are there masculine and feminine sides in every subject of study and every occupation? If so, should both sexes be trained to comprehend both sides; or should boys study the masculine or the feminine side; and girls the masculine or the feminine side?

25. Do you find that boys are keen about particular, exceptional, and remote knowledge, and indifferent to what is general, ordinary, and close-at-hand? Do you find girls are in this the reverse?

26. Do boys desire education to have a practical and immediate object in view? Do girls desire education to have a distant and cultural rather than a practical and immediate object in view?

27. Do boys prefer to learn passively what they are taught, or to solve problems independently? Do girls prefer to learn passively, or to solve problems independently?

28. Should the Elementary School allow any choice of studies according to bent (i) for the boy? (ii) for the girl?

29. Should the High School allow any such selection (i) for the boy? (ii) for the girl?

30. Does an intensive study of a few subjects at school diminish the boy's or the girl's power of initiative after leaving school?

31. Does a slender study of many subjects at school promote originality and initiative afterwards?

32. Is a College or Academic ("general culture") course after the end of the eighteenth year necessary, or desirable, when earlier choice of studies was allowed (i) for boys? (ii) for girls? Or should the "general culture" course cease with the end of the eighteenth year? (i) for boys? (ii) for girls?

33. Can boys and girls at school be taught Ethics and discuss Morals together with particular advantage? If so, what?

34. Can men and women at the University do the above? If so, with what advantage?

35. Would it facilitate the moral education of boys and girls if daily they attended, separately or together, brief religious services (unsectarian and as far as possible undogmatic, but musical, artistic, and so attractive to the young), consisting of a brief prayer or two, a psalm or hymn, and a reading from some great book likely to kindle enthusiasm for heroes and ideals; each service being designed to be an artistic unity?

36. Many people up and down the United States believe the age for admission to the Elementary School should not be six, and that to the High School should not be fourteen, as now, but would prefer that children should enter Kindergarten at the end of the third year, Elementary School at the end of the seventh year, and High School at the end of the eleventh year. Discuss this scheme, giving reasons for and against. If these divisions seem unsatisfactory, insert the periods you deem ideal.

37. Have you noticed any special traits cropping up about the end of the eleventh year of life and peculiar to that period only? (i) in boys? (ii) in girls? State what you have noticed and the conclusions you draw from them as to boys' and girls' education.

38. Have you similarly (see 37) noticed traits peculiar to the end of the eighteenth year (i) in boys? (ii) in girls? State your observations and conclusions (as in No. 37).

39. Should school education (*i.e.* that to the end of the eighteenth year of life) be (i) entirely general for (*a*) boys, (*b*) girls? (ii) entirely specialistic for (*a*) boys, (*b*) for girls, or (iii) partially general and partially specialistic for (*a*) boys, (*b*) girls? In case (iii), at what age should any special studies begin for (*a*) boys, (*b*) girls? General studies are such as to make for manhood or womanhood respectively only. Special studies are such as prepare boy or girl for definite bread-winning work only. Mention the studies which have these two tendencies only or mainly, and also those which you consider combine both tendencies about equally, or in some degree.

40. If only a general education be allowed up to the end of the eighteenth year, is there any need of its extension at "College"; or, in other words, should the "College" (or "Academic") course be retained?

41. If retained, should it be confined to separate "Colleges" which do this only; or be allowed also in "Universities" which undertake professional training too?

42. If not retained, will students, after a purely general education up to eighteen complete, be fit to specialize forthwith?

43. If you favour retaining the college ("academic") course, do

you desire it to last one, two, three, or four years before specialization should begin? Give reasons.

44. If the "academic" course is abolished, what is to become of the "Small College" where at present only this academic course is given, often with the greatest success? Should such "Small Colleges" become a kind of upper division of the High School?

45. Should men and women have co-education in the College (academic) period? What are the advantages and disadvantages?

46. Should men and women have co-education in the University (professional) period? What are the advantages and disadvantages?

47. Is co-education in post-graduate work conducive to the best results or not?

48. Are men and women the more keen about co-education?

49. Are boys or girls the more keen about co-education?

50. Do you think boys get fair play in schools where the teachers are mainly women?

51. Why do boys leave school sooner than girls?

52. These questions may not seem to you the most suitable for ventilating the subject. If so, pray add or substitute any others.

CO-EDUCATION.

The Vice-Chancellor of Leeds University has such an excellent summary of the feeling with regard to Co-education that we are induced to quote it in full from *Indian Education.* Mr. Sadler says:—

There is a wrangle in the newspapers about co-education. Father Vaughan denounces it. Mr. Cecil Grant declares that it heals much that is evil. The public looks on unconvinced. The co-education of little boys and girls is practically taken for granted. The real quarrel is about co-education for boys and girls in their teens. On the whole, for bad reasons as well as for good, the general judgment is showing itself adverse to co-education at this particular age. But, in the meantime, Father Vaughan and those who think with him are being attacked in the rear. There is great dissatisfaction with boys' schools as they are, and a considerable degree of dissatisfaction with girls' schools as they are. It does not follow from this that England will take refuge in co-education. But evidently the English public schools for boys and girls' schools of the public day school type are entering upon a period of severe criticism. It will be harder to reform the girls' schools than the boys' schools. The question of girls' education is much the more difficult of the two. Most girls quite rightly wish to receive such an education as will qualify them for a profession. This means that they have to reach the intellectual standard which, under modern conditions, is required for admission to a professional career. In other words, they have to take examinations. But these examinations are organized for boys as well as for girls. The result is that girls' schools are being subjected to an intellectual strain primarily designed for boys' schools. But girls at school, and especially girls who are at day schools, have many other things to learn besides their school work. They often have to be overstrained. They respond quickly to emulation. Most of them (though perhaps this is only the fag end of the old order) are more passive and receptive under instruction than boys are. A fine standard of manners, skill in accomplishments, a happy and self-controlled leisure, are things which get a little crowded out of the school days of some modern girls. It is hard to see how this can be helped. But people grumble at their disappearance. In the case of boys' schools, the complaints are louder and simpler. The teaching is often rather stupid. The masters are apt to be uninterested in their work. There is too much attention to, and talking about, games. Intellectual interests are stifled and blunted among the boys. A school world, especially a boarding school world, is a narrow and conservative thing. It is full of customs and fettered by absurd limitation of social outlook. The English public schools have had very little to say to English social development during the last twenty years, especially to its industrial and commercial development. And now there is trouble ahead. The clouds are dark on the horizon; the workmen are restless, dissatisfied with their work, inclined to do as little of it as they can; and among the employers there is too little of the gift of leadership and masterhood. The public schools are a good deal to blame for this. They have been too detached from the real problems of modern life. People are beginning to feel this, and the public schools are much less popular than they were a few years ago.

REVIEWS.

Books about the Primal Facts of Life.

"Questions of Sex Series."—(1) *Life and its Beginnings.* For girls under twelve. By Dr. Helen Webb. (2) *From Girlhood to Womanhood.* For girls over twelve. By Dr. Elizabeth Sloan Chesser. (Each 2s. 6d. net. Cassell.) (3) *The Three Gifts of Life: A Girl's Responsibility for Race Progress.* By Nellie M. Smith. (2s. net. Cassell.)

Many parents and teachers are now thinking seriously how it is best to answer a child's questions about the beginnings of his own and other lives. It is recognized that false answers ought not to be given, nor jests made about this subject when children ask; also that they are sure to be told something by somebody, and that it is better they should be told in good ways. But all the same, parents and teachers are met with great difficulties when they try to act for the best. When people are not accustomed, and very many people are not, to speak of these matters, they find it very difficult to put them into words; their vocabulary is not equal to the strain on it. Also many people feel a sense of shame in speaking, because their own personal experience of these things is associated very intimately with the strongest emotional crisis of their lives; they do not feel it possible to discuss them superficially and with a child, even their own child. Teachers, on the other hand, especially those who, being trained biologists, would naturally undertake this work, are provided with a vocabulary, and are able to illustrate very aptly what they have to say, but many feel doubtful whether the classroom and the lesson hour are the place and the time to deal with a subject in which the individual child needs so much to be considered.

Under these circumstances all turn with some eagerness to books, in the hope of finding help, and it is helpful to consider to what extent this is justified. Certain things appear clear and very important. The first is that it is undoubtedly the parents' great privilege and right to tell their own children about these things, and that if they undertake it with thought and care it is not so difficult as might be imagined. It is easier to do the younger it is done. That is to say, as soon as a child asks at all he should be told something suitable to his understanding. One of the wisest and best mothers we have known told her child in answer to his early questions that he began life as a sort of seed. This, in its degree, is strictly true, and the child who has grown seeds is quite ready to accept it as trustworthy information, and when at a slightly later age he wants to know where the seed grew, the wise and gentle mother is ready to tell him. This paves the way for the information for which he is not for some time ready, as to how the seed came into existence. He is, after all, not likely to ask this until he has wondered how flower seeds arise, and at a suitable time he can be told how the boy or girl who grows from the seed comes into the world. The second important point that arises is that it seems wrong to teach biology with the view of immediately applying it to explain sex. It is wrong in two ways, because it is ineffectual, and because when biological facts are slowly and thoroughly assimilated the relation between them and human questions frequently dawns in the child's mind unaided and gives pleasure for the loss of which no amount of telling and pointing out by other people could compensate. The third important case for consideration is that of the teacher who has sometimes to supply the deficiencies of incapable or wrong-minded parents. What can he do? To us it appears he can do very little unless he has great opportunities of individual intercourse with his pupils. He can teach biology—in the right way—and leave it to produce its own effect, taking care to do no more than suggest here and there the human connexion, following this up if his pupils are eager to do it. He can give books to those who are prepared for them, he can enter into discussions when the pupils obviously desire it.

What, in our opinion, is dangerous is to force this teaching in the classroom, giving it whether desired or not, and it would be specially dangerous with adolescent pupils, and more especially with girls. Youths are very often more eager to receive information *en masse,* and to discuss, provided the element of formality is lacking, and even with many of them—depending on the degree of their intelligence—some idealizing element appears to be necessary. The intellectually stronger are willing to accept facts as interesting, and to idealize for themselves; the weaker must be helped.

It has been admitted that books, if good, may be a help to the teacher; they may help the parent too, by supplementing his talks. The ideal book for the purpose would be a textbook of physiology, for those who could understand it, to which could be added something which helps the young and struggling intelligence to co-ordinate sex needs with the more distinctly human sides of life.

The books before us, examined in the light of these views, seem in the case of the first two to have some merit. Two others for boys of corresponding ages have been simultaneously published by the same firm, and others are to be published later. Books, it cannot be too emphatically repeated, can never take the place of personal and early discussion. These two would supplement personal teaching. The first one is chiefly biological. The author pleads with parents to allow their children to see and handle the things described in it, but they should do this, and be very familiar with them, long before they come to this book, if it is to be useful. The second book has much value from the point of view of general hygiene and for the way it inculcates usefulness and healthy-mindedness in women. Both appear to be more suitable for older people than those of the ages stated.

The third book is one we would not in any case give to a girl. The practical part is sound and good; the moral teaching would tend to make prigs. Girls are far more likely to improve by means of admiration for great and good men and women than by thinking of themselves as uplifters of men and regenerators of society. Also from this book a girl might receive the horrible idea that the kiss of her father or brother could infect her with a loathsome disease, and at the same time the book gives her no help in deciding whether *her* father or *her* brother is likely to be a source of danger in this way. We can imagine agony being caused by this.

All such books should be used with great caution. Inexperienced parents might get help from any one of the above, but they cannot be used to relieve parents of their responsibilities.

The Montessori Principles and Practice. By E. P. Culverwell (3s. 6d. G. Bell.)

English readers, particularly those who know something about the history of educational methods, are getting just a little tired of the Montessori System. Writing on the subject has a tendency to resolve itself into an examination of the sources from which the so-called Montessori ideas have come, and, after all, the matter is not important enough to waste time over. Mr. Culverwell wisely restricts himself to the immediate sources—Séguin and Itard—and maintains that, for the rest, it does not matter very much whether Dr. Montessori was anticipated or not in her educational views. What matters is that she has succeeded in drawing more attention to the views she holds than has any of her predecessors, and has therefore exerted a wider influence.

It is to be noted that Mr. Culverwell does not speak of a "system." He deals with the principles and practice of his Italian subject. As the result of a discussion of the relative merits of Froebel and Dr. Montessori at an educational meeting the other day, the chairman summed up the matter in an epigram: "From what we have heard it appears that the Froebelian theory is perfect but its applications defective, while Dr. Montessori's practice is excellent though it does not always square with her theory." Not otherwise does Mr. Culverwell deal with the matter, as is exemplified in his conclusion from the discussion of the problem of the "free" horse. "Happily the objection is rather against Dr. Montessori's theory than her practice." He takes an eminently sane, and, for a professor, practical view of the whole Montessori movement. He is honestly and intelligently appreciative, without in any way surrendering his right to criticize. He is an expositor as well as a critic, though he sacrifices his exposition to his criticism. He is himself aware that his order is not the logical one, for he apologizes for the order of presentation he adopts. He would have been well advised to keep to the natural arrangement of presenting his matter first and criticizing afterwards. For the reader who is familiar with the Montessori scheme there is of course no difficulty, and the criticism runs smoothly and pleasantly. But for one who reads the book to find "what it is all about" there will be a good deal of mental bumping before the end is attained. The radical contradiction between the two ideas of *freedom* and *training* is well explained away by showing that the self can be free only by its manipulation of a material that, by its very nature, necessarily imposes a certain amount of restraint. The pupil "is indeed to have his way in mental occupations, but *only in a carefully selected environment.*" Here Mr. Culverwell makes his peace with the critics of Dr. Montessori only to fall foul of M. Boutroux, who will have none of those carefully selected environments. About here, too, Mr. Culverwell breaks a lance with the out-and-out opponents of formal training. He is not intolerant in his attack, however, which is fortunate, for his opponents could find some material in his own book to back up their side of the question—for example, the paragraph beginning at the foot of page 58.

The style of the book is easy and pleasant. The author apparently has great sympathy for the reader, for in introducing a bit of rather closely reasoned writing about the nature of spontaneity he apologizes for the approaching dullness, and explains that "repulsive though it be, it had to be written." The intelligent reader will not only pardon the philosophical passage in question, but will welcome it as a genuine help to the understanding of a term that is of fundamental importance in the Montessori scheme, and that is yet in most cases used in a very loose way. The writing of the whole book is marked by a certain *naïveté* that is not without its charm. It would be better, however, if the author would include most of his foot-notes in the text. They are rather distracting as they stand; some of them, indeed, might be well omitted. But as a whole the book is an excellent one. Next to "The Montessori Mother" it is probably the best contribution in English to this important subject, and if we take the philosophical aspect alone it is perhaps the best of all.

Vivès on Education. By Foster Watson. (5s. net. Cambridge University Press.)

It seems only the other day that we reviewed a work by Dr. Foster Watson on Vivès, but when we turn back to that volume we find that its full title runs "Vivès and the Renascence Education of Women." The present book has for subtitle "A Translation of the 'De Tradendis Disciplinis' of Juan Luis Vivès." Had he given us nothing but the translation our author would have deserved well of those interested in the study of education; for this is the first time that the "De Tradendis" has been turned into English. But Dr. Watson is not the man to content himself with a mere translation, however good that translation may be. We are not, therefore, surprised to find an Introduction that runs to 155 pages, nor to find, on examining it, that it is eminently clear, accurate, and illuminating. While we do not seriously challenge Dr. Watson's general conclusions regarding the true place of Vivès in the history of education, we cannot but be amused to observe the double line of defence he has to adopt. To begin with, he must free his subject from the charge of borrowing from Erasmus and Aristotle, and must show that, though less well known to English readers, Vivès did as much for education as his (to English people) better known rivals. But when it comes to his followers the rôle is changed. Dr. Watson is keen to show that these are greatly in debt to Vivès. As patriotic Englishmen, we cannot help feeling a little sorry that our author is so successful in making out his case. For example, we do not greatly relish the conviction that is forced upon us that Dr. Watson is right in identifying a good many of honest old Ascham's sayings with remarks to be found in Vivès. But we must console ourselves with the re-

flection that if we were to follow our author's own example we might prove Ascham's independence of Vivès "by his illustrations."

In this scholarly book Dr. Watson has really presented the English reading public with a new educational classic. He has done the same service to Vivès that Mr. Keatinge did to Comenius. It is true that Comenius was pretty well known to the English educational public, and a great deal written *about*, before Mr. Keatinge introduced the very Comenius. For there is all the difference in the world between books by and books about an author. Dr. Watson is perhaps more of a pioneer in this case than was Mr. Keatinge seventeen years ago, but the two contributions have a great deal in common, not the least important element of resemblance being the remarkably able introduction in each case.

What has specially called forth this comparison is a claim made by Dr. Watson that Vivès is a specially modern thinker. It is not merely that he has anticipated some of the things in which we are now interested—Dr. Foster Watson claims, for example, that "He is the pioneer in the observational treatment of psychology"—but his whole thinking has a modern turn. Perhaps it may be suggested that it is the vigorous English into which the Latin has been turned that gives this modern effect. But Mr. Keatinge's English is not inferior in vigour or idiom, and yet Comenius in his translation retains the old-world flavour to which he is entitled, and without which we would be suspicious of the authenticity of the rendering. We must concede to Dr. Watson that he has established his thesis regarding the modernity of Vivès. We find ourselves continually reading into the pages of "The Transmission of Knowledge" a meaning to be found in our modern writers. For example, when we read on page 138: "But we must not ignore the fact that poetry is to be 'relegated to the leisure hours of life,'" we cannot but think of that classical passage in Herbert Spencer in which he relegates the fine arts to the leisure moments of life.

It has to be noted that this book does not overlap Dr. Watson's previous contribution. The two volumes are rather complementary to each other. Of the two this is the more important, and by itself conveys an excellent knowledge of Vivès and his work. But, by treating the two books as one, the reader will acquire a really satisfactory knowledge of an educator whose real importance in the development of educational thought in Europe is only now being realized among us islanders.

Children's Play and its Place in Education. By Walter Wood. (3s. 6d. net. Kegan Paul.)

The thesis of this little book is that civilization has deprived children of their natural means of development by reaction against a suitable environment, and that in consequence civilization must make provision for a systematized scheme of supervised play that will make up for the loss. The various theories of the nature of play are clearly stated and intelligently discussed, the author taking the view that, while none of them covers the whole ground, all of them are necessary to explain the facts of the case. The distinction between the educative and the recreative aspect of play is well maintained, and the popular confusion between the two is brought out in a very profitable way. The difference between adult and juvenile play is not overlooked, and attention is concentrated upon the four "play-periods," which Mr. Wood takes to be "birth to seven, seven to ten, ten to puberty, and puberty to adolescence." He is quite aware of the dangers of giving exact ages in matters of child development, but we think he is wise in giving, wherever possible, approximate ages. There is nothing that worries a lecturer on education more than the demand for dates and ages in connexion with mental development, and there is nothing that pleases a parent better than to have such definite dates and ages. Mr. Wood's readers will no doubt be grateful to him for his courage in meeting this popular demand. The ages he supplies are instructive, and on the whole will stand the test of practical application, by teachers at any rate, though parents, because of the limited area within which they work, will have to exercise intelligent discrimination. To be sure, in their case the narrowness of the field enables them to make more intensive study of the individual child, and thus acquire a knowledge that insures them against dangerous generalizations.

A valuable feature of the book is the practical help it offers. The author is a competent psychologist, but he does not limit himself to psychological speculation: he gets to the hard pan of things as they are, and gives lists of apparatus (with prices) and catalogues of books, all based upon the actual experience of those who have "made their experience." The chapters on the Educational Value of Play and on the Play Spirit are excellent on the theoretical side, but English readers will probably prefer the more practical chapters on Juvenile Literature and the Playground in America. This last-named chapter forms excellent reading, both for the actual information it gives and for the hopeful outlook it suggests. People who are inclined to despair about the future of our modern cities should read this chapter. But the whole book makes encouraging reading. The usual pessimistic question of the well-meaning but discouraged philanthropist is, "What can be done of a practical kind?" Mr. Wood gives a satisfactory answer.

The style in which the book is written is bright and pleasant. It is surely a mistake, however, to adopt the editorial "we" in a book of this kind. The text is indeed vividly personal and intensely attractive, and the "we" comes every now and again as something incongruous.

L'Année Pédagogique, 1912. By L. Cellérier and L. Dugas. (7 fr. 50 c. Paris: Félix Alcan.)

This is the second volume of an annual that goes far to remove from Pedagogy the charge of being a casual and unorganized study. It consists as before of two parts, the first purely general, and including five original articles, the second purely bibliographical, and giving an annotated list of all the significant articles and books on pedagogical subjects that have appeared in French, English or German during the year 1912. Of the general articles, the first, by M. Ferdinand Buisson, treats of the School and the Nation in France, and draws a parallel between Prussia after Jena and France after Sedan. M. Cellérier has a valuable contribution on the Education of the Will, and a very interesting investigation into the Literature of Crime, under which title he includes the teachings of the kinematograph. M. Dugas's two articles treat respectively of instruction, and particularly moral instruction, as supplied by official channels in France, and of the type of intellectual education exemplified in the case of J. S. Mill. This part is rather longer than last year, covering 114 pages as compared with 82. The volume as a whole is a little larger—524 pages as compared with 487. Last year the Bibliography proper covered 410 pages; this year it is content with 399. But while last year the number of individual entries was 2,502, this year they number 2,729, which indicates that the notices must be slightly shorter. This is probably as it should be. What is wanted is as complete a list as possible of articles and books that really count, with just as much description as will enable the inquirer to save time by neglecting those that do not meet his needs. It will be remembered that the descriptions are not meant to be critical, but to give an objective account of the contents, leaving it to the investigator to determine how far any particular reference will meet his needs. It is true that the editors have not been able in one or two cases of exceptional merit to avoid expressing their approval, but this is very exceptional.

The reviewer who is now writing has, at some personal inconvenience, counted the names of the authors given in the index, These number 2,231; from which it may be calculated that the majority of these authors have contributed only one item, the average contribution per author amounting to 1·22. If anyone cares to run down the index of authors he will find that the Anglo-Saxon element is not nearly so large as Anglo-Saxons who are interested in education would like. Besides the index of authors, the work is supplied with a subject index that greatly increases the value of the work as a book of reference. Further, the General index gives a satisactory clue to the principle on which the volume is arranged. One is almost tempted to quote this index in full, as it would give a better idea than anything else of the scope of the volume; but we must content ourselves with the statement that any inquirer can, with the minimum amount of trouble,

get from this index precise directions as to the sections that will be of most use to him. Our only fear is that the book may be too good to last. The interest among us in England is not yet great enough to maintain a book of this kind of our own, even on a very much smaller scale. It is to be hoped, therefore, that those of us who value the help here provided will do what we can to secure the book such a welcome in England as will encourage its editors to persevere in their fine work.

English Education and Dr. Montessori. By the Rev. Cecil Grant. (2s. Wells Gardner.)

In this ecstatic little volume Mr. Grant has thought it worth while to get the help of another enthusiast to provide an Introduction. It is difficult to rise to the point of view of these two enthusiastic persons. They deal too much with superlatives. In his Introduction Dr. Saleeby lets himself go, and tells us that in his opinion "Miss Ellen Key is the wisest woman in the world at the present time." Men are not involved here. They are not so fortunate when Mr. Grant takes up the parable. He holds that "Miss Charlotte Mason, both in grasp of principles and in work achieved, is without peer among England's educationists to-day." The women appear to be coming to their own at last. Mr. Grant is modest enough to take the humble rank of a disciple at the feet of a Master, who in this instance is a Mistress. His book reads more like an evangel than a sober treatise on an educational subject. His attitude reminds us of nothing so much as that of the sinner who has found religion at a revival meeting. He talks in the approved way about his previous state of darkness, and of how differently he looks upon things now "since I received illumination." About certain deplorable things that teachers say to-day he admits that "I should have said the same a year ago."

The tone of the book accords ill with the insistence on the scientific nature of the investigations of her whom Mr. Grant loves to call "the Dottoressa." But in this matter, as in all the rest, our author is genuinely modest and in earnest. It appears to be in no spirit of mock self-depreciation that he speaks of "my own unscientific mind." He is a genuine convert who is quite willing to rely upon the scientific acumen of his Mistress, and to do what he can to stir up enthusiasm for her methods. Sometimes he cannot wait for words to make clear his point, but relies upon his enthusiasm infecting his readers by what may be called first intention. Thus on one occasion he bursts into "But, oh! do you not see what I mean?" Occasionally he drops into actual prayer. He does his best to be fair to others, and admits that a good deal of what "Dr. and ex-Professor Montessori" proclaims has been known long ago; and as a matter of fact it is a curious thing that all the illustrative quotations—and they are copious—are from other writers than his Mistress, notably from Spencer and Froebel. His explanation is naive. His one quotation from "the Doctor" is prefaced by the statement that he does not venture to quote more, "for is not the book at your disposal?" Have Spencer and Froebel gone out of print?

To the calm person who is in the habit of reading educational literature there is something almost attractive in all this apostolic fervour, though he finds it impossible to share it. We have so many Thomases in our ranks that we cannot afford to discourage the rare Peters who arise. So we welcome the passion of this pedagogic prophet, though we ourselves cannot attain unto it. His best work is done where he follows his natural bent and prophesies. In his chapter on "The School of the Future" we have him at his best, or nearly at his best. His suggestion of a great Montessori scheme for looking after the children of our Anglo-Indian officials is very alluring. But perhaps the highest point is reached in the chapter entitled "The Real Thing," for here Mr. Grant speaks as a disciple, it is true, but as a disciple on a higher plane, and a disciple of a still higher Teacher. However much he may irritate his more balanced readers, our author cannot fail to compel from them that deep respect that sincerity always commands.

The Purpose of Education. By St. George Lane Fox Pitt. (2s. 6d. net. Cambridge University Press.)

Dr. Dyer, of Glasgow, maintains that we live in the day of little books on Education; but this book is too little. In his eighty-three pages Mr. Lane Fox Pitt cannot do justice to the vast theme. He says many wise things, and he says them well, but it is impossible to introduce the educational applications of recent psychological research in a book of this size. There is too much of the application and too little of the research. It is difficult to place the author. On the title-page he indicates his membership of the Council of the Society for Psychical Research. But there is no trace of "spooks" in the text. Though the name of Freud is not mentioned, the well read cannot fail to trace the influence of the Vienna School. One hardly knows the particular group of people interested in education to which Mr. Lane Fox Pitt makes his appeal. But we rather fancy that the ordinary professional teacher, and still more the person interested in educational administration, will be at a loss to understand a theory of education based upon an unconscious mind. Can we expect the practical English educator to maintain his equanimity as he reads: "the fact that a great region of mind is neither conscious nor subconscious, but still is mind potentially, and the existence of which is actually felt when we engage in the operation of observing fresh phenomena"? In a well-known educational work the author tells us, speaking of educational theorists, "by their metaphors shall ye know them." Mr. Lane Fox Pitt's favourite metaphor is the iceberg with its great mass of submerged matter, and its small part above the surface. He does not lay too much stress on the figure. In fact he gives an excellent figure to illustrate the dangers of using figures. But he does not escape those dangers. The submerged part of the iceberg is what calls for explanation. If this represents the region of the unconscious mind, it requires a much fuller treatment than this book offers. We are not attacking the author's views, but merely complaining that in the present state of knowledge of educational theory his work falls between two stools. If he writes for real experts he must go into greater detail in his applications; if he appeals to the great mass of intelligent teachers and others who have an interest in education, but have done only the ordinary amount of reading in the subject, he must give a fuller exposition of the basis on which he builds.

The Marking System in Theory and Practice. By I. E. Finkelstein. (1 dol. Baltimore, U.S.A.: Warwick & York.)

The eighty-eight pages of this little book supply a brief but satisfactory study of the principles underlying the system of representing by marks the progress of pupils. The author's thesis is supported by statistical evidence provided by the records of Cornell University. To the question, "Should marks indicate performance or ability or accomplishment?" Mr. Finkelstein answers: "Accomplishment." He then points out that marking may have a basis of two, three, four, five, or a hundred divisions; that almost no one has much to say for the four-division basis; that the two-division scheme is best suited for post-graduates; and that the three and five divisions may be combined with the "percentile" system. Previous writers have shown that there is a certain symmetry in the classification of the results of marking by percentages. Out of every hundred students assessed, the following are the numbers that fall into each class, according to three American professors:

	A	B	C	D	E
Meyer	3	22	50	22	3
Dearborn	2	23	50	23	2
Cattell	10	20	40	20	10

Here A stands for "excellent," B for "superior," C for "average," D for "inferior," and E for "failure." As the result of his examination of the whole subject Mr. Finkelstein adopts a somewhat different percentage—A 3 per cent., B 21 per cent., C 45 per cent., D 19 per cent., and E 12 per cent. In the case of E, however, he does not regard the whole 12 per cent. as dead failures, but would "condition" 11 per cent. and regard the remaining 1 per cent. as outright failures. The practical outcome of Mr. Finkelstein's studies is the recommendation of his curve as a sort of standard from which the marking of any individual teacher should not

greatly diverge. The practical effect of this would be that all nominally "pass" examinations would really become competitive. As a matter of fact this is the case at present. For though examiners tell us that they mark papers on their merits and according to a fixed standard, we know that as a matter of fact the percentage of failures remains pretty constant from examination to examination. For the credit of the examination a certain minimum of failures must occur each year, even though the merit of the candidates as a body may vary from year to year. This point Mr. Finkelstein does not bring out, but he supplies material from which this and many other conclusions of importance to the practical teacher may be drawn. His graphs are both interesting and instructive.

Thresholds of Science: Mathematics. By C. A. Laisant. (2s. net. Constable.)

On glancing through the list of the volumes issued by Messrs. Constable & Co. as "The Thresholds of Science Series," it will be at once inferred that the works included are translations, and that the originals are, in the majority of cases, French treatises. We have met M. Laisant before, in his "Initiation Mathématique," and though what is beyond our power at the moment—namely, actual reference to the latter work—would be necessary before asserting that the present volume is a translation of that delightful little treatise, still we note that page after page of the new publication deals with the same subject as its predecessor, and in the same strain. The translator of the French original of the present text has done much satisfactory work, but it is to be regretted that the translation is very often too literal, and fails, on that account, to give a perfect rendering of what the reader knows must be the spirit of the French original. The volume is intended, on the one hand, for those who wish to acquire for themselves in an informal way some knowledge of the first principles which constitute the groundwork of mathematical science — arithmetical, algebraical, geometrical, &c. Further, it has been written as a handbook for the parents or other guides of little children who are as yet far too young to study the most elementary mathematics, but who are never too young to be amused with toys and games that develop their dawning ideas as to number and quantity and geometric form. M. Laisant's methods will be invaluable for the purpose of smoothing the path that leads to formal study. The author constantly reiterates the expression of the guiding principle that conscious effort on the part of the child-mind is to be strenuously avoided; that the number game, for example, is to be put away immediately, when the eagerness and pleasure of those taking part in it flag in the slightest degree. It is marvellous to recognize how, as the result of suggestion only—suggestion which repeats itself as often as the same game is played—one important fact after another is assimilated unconsciously. The laws of counting impress themselves on the child's mind; the seed is sown that will develop into a ready conception of the principle of local value; for in the game of combining ten smaller units to make one larger one we note that the greater "bundle" is always placed on the left of the smaller. The manner in which the first principles of fractions are suggested is excellent. The simplicity of the geometrical verification of the formulæ for the sums of the natural numbers, of their squares, and of their cubes, is conspicuous. The little child is encouraged to realize truths an appreciation of which will hereafter make the formal expressions for the areas of rectangles, of triangles, of parallelograms, of the trapezium, present themselves as natural forms—nay more: as the only reasonable ones. It is needless to extend our list, since he who runs may not only read M. Laisant's text, but may thoroughly enjoy and profit by its perusal. Some details call for revision. For example, the word "proportion" is frequently used where "ratio" would be the better rendering. Again, English mathematicians, at any rate, do not call Euclid's I 47 the "Pons Asinorum"; the honour (*sic*) of that epithet has been reserved for the fifth proposition of the first book of the "Elements." The present volume has been brought out in a very neat and durable form. The type is good and clear, and the diagrams, although in some cases they are rather small, are nevertheless satisfactory both in execution and reproduction. If all the volumes of "The Thresholds of Science Series" prove equally attractive, the collection will deserve to become popular.

A School Arithmetic. By A. Clement Jones, M.A., Ph.D., and P. H. Wykes, M.A. (4s. 6d. Edward Arnold.)

As teachers of mathematics in one of our important grammar schools, the authors of the present work have been able to combine with competent knowledge of the subject treated the wisdom gained through practical experience in the training of pupils. Speaking generally of the volume under consideration, it is a valuable textbook, modern in scope and arrangement and thoroughly practical in tendency. The course of instruction which it embraces is supposed to extend over a period of three years, each successive year corresponding to a study of one of the "Parts" into which the entire book is subdivided. The work is not suitable for the young beginner, a previous drilling in the elements of the subject being assumed as satisfactorily completed. Throughout the volume the discussion of principles and methods is both clear and convincing, and this is notably the case in the preliminary treatment of logarithms. In the preparation of the treatise a serious attempt has been made to secure instruction calculated to ensure for the student the general efficiency that tells far more than special knowledge in the early years of a business career.

Interspersed amongst the text are many examples fully worked as models of method. Exercises for practice on the part of the reader are not only varied, but very numerous, and series of question papers set by a number of public examining bodies have been selected and reprinted. The answers to the exercises and the problems of the question papers form part of the volume.

Notwithstanding the care that has so evidently been bestowed on the work in the course of its production, there is still room for revision and the consequent correction of errors. Most, but *not all*, of these are probably due to slips, clerical or otherwise. Numerous boldly executed diagrams lend aid to the explanations undertaken in the text.

A Textbook of Elementary Statics. By R. S. Heath, M.A., D.Sc., Vice-Principal and Professor of Mathematics, University of Birmingham. (4s. 6d. Clarendon Press.)

This book has been written with the fundamental and undoubtedly important idea that facility in the operations of resolving complex force systems into their simplest form must be attained before the more difficult applications of such operations to dynamical problems are attempted. The usual fundamental assumptions and laws suggested by experiment are stated, as a matter of necessity, at the outset, and are made the basis of a mathematical theory which is intended to develop and co-ordinate the consequences of the fundamental principles in order to demonstrate the fact that the initial assumptions are logically interconnected. The use of the calculus has been completely avoided throughout, but the bulk of the work is mathematical, and the book will probably not appeal fully to anyone who does not, at least, possess some knowledge of co-ordinate geometry of both two and three dimensions.

Vectorial treatment of the subject has not, however, been neglected, and the book contains some good work, covering all the ground that might reasonably be expected from a first course. A chapter on jointed frames includes the method of sections, the method of two trials, and the treatment of frames with a rigid member. The example which shows the application of the stress diagram to a stopper toggle joint is, however, difficult to follow, as no definite instructions are given to show how the directions of the reactions have been obtained or assumed.

Analytical processes for the reduction of any system of forces and the general conditions for equilibrium have been explained in detail, and the conditions governing, and necessary for, the determination of the central axis and minimum couple of a force system have been well demonstrated. A chapter on Friction includes a brief discussion on the cone of friction and the use of the friction circle. The idea of the principle of virtual work and of the work function is also touched upon, and its application to conditions of stability considered. A brief chapter at the end of the book deals with machines of a simple type.

The one criticism that might possibly be levelled at the work is that the line of treatment adopted is of too academic a nature—academic, that is to say, from the point of view of the essentially practical student, although the examples illustrating the various principles are to some extent based on practical ideas.

The book, however, provides an excellent and concise introduction to the subject, and a student who masters its contents and, in addition, works carefully through the large number of exercises that are appended to each chapter, will be in a thoroughly sound position to appreciate to the fullest extent the more advanced applications of the work.

The book forms an important and useful addition to the literature of the subject.

Ancient Greece. A Sketch of its Art, Literature, and Philosophy viewed in connexion with its External History from the earliest times to the Age of Alexander the Great. By H. B. Cotterill, M.A., Translator of "The Odyssey." (7s. 6d. net. Harrap.)

Mr. Cotterill has set himself a somewhat adventurous task, but by judicious selection and disposition of the multifarious materials he has succeeded beyond anticipation. He furnishes a substantial summary exposition that will give general readers a real knowledge of the progress of Greek activity and civilization as ascertained by the best modern authorities on the various aspects of the subject. The sketch of the Aegaean civilization involves the increasingly instructive connexions with Crete, Egypt, and Troy, and the discussion of some of the more important traditions in relation to certain occurrences in Greece proper down to about B.C. 1200. "The Dark Age" of the next four centuries was an epoch of great invasions or migrations, "which rapidly changed the character of the population and the civilization in many parts of Greece, and extended the Hellenic name to large tracts of country on the other side of the Aegaean Sea." Mr. Cotterill relates the mythical accounts of these migrations, and cautiously suggests the underlying facts. The Age of Colonization—the next two centuries and a half—brings us to what but recently was the usual commencement of Greek history. "The influence of Greater Greece," said the late Professor Butcher, "is the determining fact in the history of the Hellenic people." The political and intellectual effects find suggestive analogues in our own Elizabethan age, and the development of Hellenic patriotism may be compared with the patriotic enthusiasm of Scots that have overrun the modern world. The outstanding events and characteristics of the later periods are also very carefully and effectively set forth. To each chapter are appended "sections" dealing with matters closely connected with the period therein treated. Thus, to the chapter on the Spartan and the Theban Supremacy are appended four sections: A, Xenophon; B, Sicily and the Carthaginians; C, Plato; D, Sculpture, Architecture, and Painting till the accession of Alexander. By this disposition the main line of the history can be followed without interruption, and then be supplemented from the Sections at will. Notes on temples, dress, coins, and vases are placed at the end of the volume. There are nearly 150 illustrations in half-tone and line, and five plates in colour—a valuable and attractive feature of an excellent work.

GENERAL NOTICES.

EDUCATION.

Montessori Schools as seen in the Early Summer of 1913. By Jessie White, D.Sc. (1s. net. Cornish Brothers and Humphrey Milford.)

We have here a baker's dozen of chapters, each giving a somewhat detailed account of one of the schools in Italy or Italian Switzerland in which Montessori principles are being put into practice. Mrs. White, in her two months' inspection, has visited most of the interesting schools, and succeeds in giving a very effective presentation of what she saw and heard. Her aim appears to be rather to give the

(*Continued on page* 152.)

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reader material on which to form a judgment than to provide a judgment ready made; and as her observation is guided by her scientific training and her great experience as a teacher, she has succeeded in producing a useful, if not very inspiring, record. Read along with some of the general accounts of Montessori's work, this little volume will be found to give exactly the exemplification required for the intelligent comprehension of what is actually being done.

CLASSICS.

Caesar: Gallic War. Book VI. By Ll. M. Penn, M.A. (1s. 6d. University Tutorial Press.)

This book is intended for the lower and middle forms of schools. It contains a very useful introduction dealing with general topics such as "Gaul and the Gauls" and "The Roman Army." The editor says that he has avoided notes on grammar except in regard to peculiarities of construction, and on the grammatical side the book is weak. The notes and punctuation at the end of Chapter XXIV make nonsense of the passage, although a correct paraphrase is given. In Chapter XXII *aequitate animi* is wrongly translated, as is *sub vexillo* in Chapter XXXVI, and *nullo . . . percepto* in Chapter XL. The genitives *vitae necisque* in Chapter XIX are objective, not "genitives of definition," and we noticed several other inaccuracies.

Puer Romanus. By R. B. Appleton, M.A., and W. H. S. Jones, M.A. (2s. 6d. Clarendon Press.)

This clever little book will be welcomed by all teachers using the Direct Method in Latin. It is intended for a second-year reader. A Roman boy gives an account of himself, his home and school, and tells of incidents from his daily life. Passages from Catullus, Martial, Horace, and other writers are cleverly brought into the narrative. Thus, we have a journey from Brundisium modelled on the well known satire of Horace, and Pliny's anecdote of the haunted house is introduced by a notice in the Forum of a house to let. Catullus' poem on Lesbia's sparrow is given as a recitation by the boy at a dinner. The whole forms a lively and interesting narrative, which gives the teacher excellent opportunities for conversational practice and which contains much solid matter. The book is tastefully printed, with some admirable illustrations.

"Bohn's Classics."—*The Iliad of Homer.* Vol. II. By E. H. Blakeney, M.A. (3s. 6d. G. Bell.)

Mr. Blakeney has taken as a model for his translation the narrative portions of the Authorized Version of the Old Testament, and the result is very succesful. The translator, though keeping closely to the text, has managed to avoid baldness and stiffness, and the version moves easily and freely. The foot-notes contain much interesting matter, and parallels and illustrations are given which range over the whole field of literature. The book will be of great service to the student and will give the general reader a very good idea of the greatness of the original.

Latin Grammar for Schools and Colleges. By W. King Gillies, M.A., B.A. Oxon., and Frederick P. Shepherd, M.A. (2s. Oliver & Boyd.)

The aim of the authors is "to provide a manual which may be placed in the hands of beginners and which also embodies what an advanced pupil may be expected to know of Latin grammar by the time he leaves school." The matter is well arranged, and for the more advanced pupil chapters are given on Word Formation, Anomalous and Defective Nouns, Latin Quantity and Metre, and other points. The syntax is clearly written and there is a very useful appendix on constructions less commonly met with. The book contains an index, and we thoroughly recommend it for use in schools.

Matriculation Latin Course. By B. J. Hayes, M.A., and A. J. F. Collins. (4s. 6d. University Tutorial Press.)

This book is intended to carry the student up to the standard of Latin which is required by British Universities for their Matriculation certificate, and any one who worked through this book should have no difficulty in reaching that standard. A knowledge of elementary Latin accidence is assumed, but a summary of accidence is given in Part II for reference. Latin syntax is treated with excellent clearness and simplicity in chapters of suitable length. The various points of importance are well brought out by differences of type At the end of the book are copious exercises to each chapter, consisting of a number of very suitable sentences to be rendered into Latin. In addition each exercise is preceded by a reading lesson consisting of a passage from a Latin author. These pieces are well chosen, and, where difficult sentences occur, a grammatical analysis is given at the foot of the page, which will be of great service to the less advanced student. We thoroughly recommend this book

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These two books by the same authors contain selections from the "Metamorphoses" which are very suitable for school reading. Each story is provided with a short introduction, and in places the text is simplified. There are short notes and a vocabulary and prefaces on the works of Ovid and the metre of the poems. The format of the books is pleasing.

Limen: a First Class Latin Book. By Profs. Walters and Conway. Fourth edition. (3s. John Murray.)

In bringing out a fourth edition of their well known "Limen," Profs. Walters and Conway have taken the opportunity of revising the book throughout. The alterations are of a minor character, mostly consisting of corrections of inconsistencies of termination which had inadvertently crept in. The copy before us (the teachers' edition) contains an appendix for teachers on the oral method. It would be superfluous to praise this book, which is thoroughly established as a school textbook.

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FRENCH.

Feuilles de Route, 1870. By Paul Déroulède. Adapted and edited by R. H. Pardoe. (Pp. 111. 1s. 6d. Clarendon Press.)

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Preliminary French Lessons. By Otto Siepmann and L. F. Vernois. (Pp. 120. 1s. Macmillan.)

Except for a French-English Vocabulary this is a Direct Method book, well arranged, well printed, and well provided with pictures. The French accent of Mr. Brock's illustrations is now famous. There are exercises in pronunciation and a summary of grammar. The latter might be reduced in quantity. It is remarkable that *pour* in *pour les enfants* is classed as a preposition; in *pour aider* as a conjunction.

L'Histoire de France en Thèmes (1789–1912). By T. P. Young. (Pp. 127. 2s. 6d. Oxford University Press.)

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Méthode Directe pour l'Enseignement de la Langue Française. By Charles Schweitzer and Emile Simonnot. English edition published in collaboration with E. G. W. Braunholtz. Première année 100 Illustrations. (Pp. 149. 2s. Paris: Armand Colin. London: Hachette.)

This is an attractive book in many ways. It will give the good teacher good opportunity for good work. There are excellent exercises in pronunciation. But surely it is a mistake to suppose that English pupils will pronounce *on* as *an* (Section 29). The opposite mistake is common. It is surprising to find no exercises in the division into syllablés. There is only a reference to it in Section 62. The sentences in *ce qui se dit en classe* are partly to the point and partly unfortunate, as they include remarks (and threats) which are the sign of the incompetent master in England (this is no reflection on French schools). Is not the form wrong in Section 48? So much of this sort of thing may be totally unreal. Should two grammatical forms be given in a first year—*e.g.* Sections 3, 5, and 17? The grammar probably covers too much ground, though not more than is usual in these Direct Method books. The vocabulary used might be reorganized in places, with more attention to the relation of one act to another—*e.g.* Section 108. It is based on objects and actions in the classroom. It is as practical as we can wish for—*e.g.*

(*Continued on page* 154.)

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HISTORY.

The Navy under the Early Stuarts, and its Influence on English History. By C. D. Penn, M.A. Lond. (5s. net. Leighton Buzzard and Manchester: The Faith Press.)

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"Bell's English History Source Books."—(1) *The Welding of the Race*, "449"–1066. Compiled by the Rev. John E. W. Wallis, B.A. Oxon., Assistant Master at Christ's Hospital. (2) *From Palmerston to Disraeli*, 1856–1876. Compiled by Ewing Harding, B A. Lond., Senior Master of the Modern School, Southport. (1s. net each. G. Bell & Sons.)

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The Origin and Development of Public Administration in England. By G. T. Reid, B.Sc. Lond., Mitchell Student of the University, 1906–8. (1s. 6d. Macdonald & Evans, 4 Adam Street, Adelphi, W.C.)

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(*Continued on page* 156).

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(*Continued on page* 158.)

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SYLLABUS.

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III. (*Feb.* 19.) *The Perceptual.*—The senses general and special: contribution sensation makes to knowledge: classification of pupils according to the "preferred sense": the training of the senses: distinction between sensation and perception: the mind's share in perception: meaning and limits of observation: relation to inference: the observation zone: the inference zone: the inference point: the gaping point: distinction between perception and apperception: the "here and now" element in perception.

IV. (*Feb.* 26.) *Imagination.*—Relation of imagination to perception on the one hand and to memory on the other: usual neglect of the mere image-forming aspect, and resulting emphasis on the æsthetic aspect: consequent suspicion: "the busy faculty": the so-called "kinds" of imagination differentiated by the number and kinds of conditions that limit its exercise: importance of clearly imaged ends in practical life: function of the imagination in geography, history, geometry, and other branches of the ordinary school curriculum: imagination as a drag on thought: day-dreaming.

V. (*March* 5.) *The Conceptual.*—Distinction between the gathering and the elaborating of psychological material: conception is elaborative: the static and dynamic views of ideas: ideas as forces: mental content: change of activity of a given idea, temporary and permanent: co-presentation and interplay of ideas: hierarchy of ideas: the fixed idea: marginal and focal ideas: apperception masses and soul-building: fusion, complication, and arrest: mediate and immediate recall: the possibility of the subconscious influence of ideas.

VI. (*March* 12.) *Modes of Expression.*—Relation between impression and expression: physical reactions of the organism: various theories of the origin of speech: possibility of thought without speech: words and their meaning: connotation and denotation: transitive and intransitive words: definition: laws of classification: difference between *having* an idea, *realizing* an idea, and *expressing* an idea: shorthand thinking: symbolism: gestures as a means of expression: self-expression as a means and as an end in itself: self-realization as the aim of education.

VII. (*March* 19.) *The Intellect.*—Distinction between the mind and the soul: former over-estimation of the intellect: present-day tendency to depreciate it: distinction between understanding and reason: the logical and the psychological standpoint: meaning of *thinking*: its formal and its practical aspects: the purposive element: relation of means to ends: the teacher's power to influence the thinking of his pupils: the laws of thought as thought, and the fundamental necessity of thinking: the criterion of thought: possibility of self-deception in thinking.

VIII. (*April* 30.) *Memory.*—Memory as a natural endowment: brute memory: not limited to mental processes: personal identity: possibility of improving the natural memory: relation between retention and recall: Bergson's two kinds of memory: use of the memory: predominance of purpose in manipulating the memory: need for selection of material: management of mental content: mnemonics and the educational application: learning by rote: pictorial and rational memory: memory in relation to reality: connexion between memory and imagination: occasional confusion between them.

IX. (*May* 7.) *Attention and Interest.*—Attention as a general innate quality: index of educability: essentially a prehensile process: has an active and a passive aspect: quarrels about the classification of the different kinds of attention: question centres round the relation of the will to attention: interest the pleasure-pain tone that accompanies attention: interaction between attention and interest: interest as means and as end: the mechanism of attention: its vascular, respiratory, and muscular accompaniments: potency of attitude rhythm of attention: concentration and diffusion beats.

X. (*May* 14.) *The Emotions.*—Divergent views of the nature and functions of the emotions: the disturbance theory and the consequent depreciation of the emotions: the pleasure-pain tone that accompanies the activities of the soul: the McDougall view: the driving power of spiritual life: relation to ideas: expression of the emotions and the various theories connected with it: the Lange-James theory and its practical applications to school work: control of the emotions: the relation between feeling and desire: the element of activity.

XI. (*May* 21.) *Temperament and Type.*—Nature of temperament: its place as the physical basis of character: permanency of temperament: Lotze's view, and its educational application: possibility of deliberate change of temperament: physical attributes of the temperaments; relation to personality: meaning of type: contrast with average: classification of pupils by types, and its dangers: place of the living child as the teacher's real subject: ideal pupil as standard: deflection from this standard in two directions according as we consider intellect or conduct.

XII. (*May* 28.) *Will and Character.*—Relation of will to knowledge, on the one hand, and feeling on the other: place of desire in development of will: the meaning and function of the motive: fallacy of "the strongest motive": resolution of the dualism implied in the process of making up one's mind: metaphysical excrescences obscuring the problem of the freedom of the will: the evolution of the will: the memory of the will: the possibility of training the will: the time element, and its importance in all discussions of the teacher's responsibility in character-training.

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Readers desiring to contribute to the Mathematical columns are asked to observe the following directions very carefully:—

(1) *To write on one side only of the paper.*
(2) *To avoid putting more than one piece of work on a single sheet of paper.*
(3) *To sign each separate piece of work.*

17649. (T. H. Matthews.)—Given a circle and its centre, to inscribe in the circle an equilateral triangle, using the *ruler only*.

Solutions (I) *by* J. M. Child, B.A., B.Sc., *and* C. V. L. Lycett; (II) *by* R. F. Davis, M.A., *and the* Proposer.

(I) The dotted rectangle is the auxiliary parallelogram used to draw the parallels below.

Draw any diameter AB and a chord CD parallel to it (see Lemma).

Let AC, BD meet in E; then EO bisects CD in N, and is at right angles to AB.

Let OC, BE meet in T; then TN bisects OB in M; through M draw PMQ parallel to OE; then APQ is an equilateral triangle.

Lemma.—Given a parallelogram, a line, and a point, draw a parallel to the line through the point.

This simple construction, which only involves a dozen lines or so and elementary proof, was given by me some time ago in the *Mathematical Gazette*.

(II) Draw diameter AOB of the given circle; take any point T and join it to A, O, B; upon OT take any point U, and let (AU, BT) intersect in b, (BU, AT) in a, (OT, ab) in o. Then aob is parallel to AOB, and $ao = ob$. Let (Oa, Bo) intersect in W and (Wb, AB) in C. Then OC = 2OB. Through C draw any chord CPQ, and let the polar of C, which is the join of (AQ, BP) and (AP, BQ), intersect the circle in $\beta\gamma$.

Then A$\beta\gamma$ is the inscribed equilateral triangle required.

17663. (Professor R. W. Genese, M.A.)—The equation in areals to the perpendicular from the orthocentre of the triangle of reference on any line $l\alpha + m\beta + n\gamma = 0$, is

$$(m-n)\cot A.\alpha + (n-l)\cot B.\beta + (l-m)\cot C.\gamma = 0.$$

If P, Q, R denote the coefficients in this equation, then the equation to the perpendicular from any other point α', β', γ' is

$$\begin{vmatrix} \alpha, & \beta, & \gamma \\ \alpha', & \beta', & \gamma' \\ Q-R, & R-P, & P-Q \end{vmatrix} = 0.$$

Solution by R. F. Davis, M.A., *and* W. N. Bailey.

The equation of the line at infinity in areals is $\alpha + \beta + \gamma = 0$, and the point at infinity on $l\alpha + m\beta + n\gamma$ is

$$\alpha : \beta : \gamma = m-n : n-l : l-m.$$

The polar of this point with respect to the self-conjugate (or polar)

circle of the triangle of reference (centre at the orthocentre), whose equation is $\Sigma a^2 \cot A = 0$ will be

$$\Sigma (m-n) \cot A . \alpha = 0,$$

which therefore represents a line through the orthocentre perpendicular to $\Sigma l\alpha = 0$.

Again, the point at infinity on this polar

$$\alpha : \beta : \gamma = Q-R : R-P : P-Q$$

will, if joined to $\alpha'\beta'\gamma'$, be perpendicular to $\Sigma l\alpha = 0$.

17643. (R. Vythynathaswamy.)—The locus of centres of circles passing through the pole and touching the limaçon

$$a + b \cos(\theta - \alpha) = r$$

is a circle.

Solutions (I) *by* R. F. Davis, M.A.; (II) *by* W. N. Bailey.

(I) The limaçon of the Question may be regarded as the pedal with respect to the origin O of a circle of radius a, the co-ordinates of whose centre are b, α. Draw the tangent at any point P of the circle, and let fall upon it the perpendicular OY. Then the tangent at Y to the pedal makes with OY an angle equal to OPY. Thus, if Q is the middle point of the hypotenuse OP of the right-angled triangle OYP, then QY = QO, and QYO is the complement of OPY, so that QY is normal to the pedal at Y.

Since 2OQ = OP and the locus of P is a circle, therefore the locus of Q is also a circle.

(II) The limaçon

$$r = a + b \cos(\theta - \alpha)$$

can be traced by a point P carried by a circle which rolls on an equal circle of diameter a, and

$$QP = OS = \tfrac{1}{2}b,$$

and $\angle QPS = \angle OSP = \theta - \alpha$.

If D is the point of contact, then PD is the normal at P to the limaçon, and

$$PD = DS.$$

Hence the centre of the circle which touches the limaçon at P and passes through the pole S is D, which always lies on the circle centre O and radius $\frac{1}{2}a$.

Its equation is evidently

$$r^2 - br \cos(\theta - \alpha) - \tfrac{1}{4}(a^2 - b^2) = 0.$$

The following solution is by the Proposer:—

Invert with respect to the pole. Then we have to prove that the mid-points of lines joining the focus of a conic to the inverse of its pedal lie on a circle. This is easily seen since the pedal is the auxiliary circle and its inverse is another circle.

17637. (J. J. Barniville, B.A.)—Express $(x^2+x+1)(y^2+y+1)$ in the form A^2+3B^2 in nine ways.

Solution by Lt.-Col. Allan Cunningham, R.E.

For shortness write $L = (x^2+x+1)$, $M = (y^2+y+1)$, and $LM = N$. In questions of this sort, it is usually understood that *all symbols shall be integers*. But this restriction cannot be assumed here, as the product LM cannot in general be expressed in nine ways in form (A^2+3B^2) if A, B be both integers.

Now each of L, M is always expressible (algebraically) in three ways in the form (A^2+3B^2). [A, B need not be integers.] Call these for shortness L_1, L_2, L_3 and M_1, M_2, M_3. Then

$$L_1 = (\tfrac{1}{2}x+1)^2 + 3(\tfrac{1}{2}x)^2, \quad L_2 = \{\tfrac{1}{2}(x-1)^2 + 3\{\tfrac{1}{2}(x+1)\}^2,$$
$$L_3 = (x+\tfrac{1}{2})^2 + 3(\tfrac{1}{2})^2;$$
$$M_1 = (\tfrac{1}{2}y+1)^2 + 3(\tfrac{1}{2}y)^2, \quad M_2 = \{\tfrac{1}{2}(y-1)^2 + 3\{\tfrac{1}{2}(y+1)\}^2,$$
$$M_3 = (y+\tfrac{1}{2})^2 + 3(\tfrac{1}{2}y)^2.$$

Moreover, for every way in which L, M can be expressed in a pair of forms $L = (a^2+3b^2)$, $M = (c^2+3d^2)$, their product N can be expressed (algebraically) in the form (A^2+3B^2) in two ways, viz.,

$A = (ac-3bd)$, $B = (ad+bc)$; or $A = (ac+3bd)$, $B = (ad-bc)$.

And as L, M can each be expressed in this form in three ways, it follows that their product can be expressed (algebraically) in the form (A^2+3B^2) in $2.3.3 = 18$ ways.

But the A, B will not in general be integers in more than two of these final forms. For, firstly, the A, B of L_3, M_3 can never be integers. Next, if x, y be integers, then L, M, N will be integers. And, if L, M be both prime, then only one of L_1, L_2, and only one of M_1, M_2, can have their A, B integers, viz.,

Of L_1 when x is even, of L_2 when x is odd; of M_1 when y is even, and of M_2 when y is odd.

In this case, *i.e.*, with L, M both prime, the product LM is expressible in only two ways in the form (A^2+3B^2). When L, M are composite the number of forms of the product LM is much more numerous.

17653. (Professor H. Langhorne Orchard, M.A., B.Sc.)—Find the sum of the series

$$1 + \tfrac{1}{3} + \tfrac{1}{5} + \tfrac{1}{7} + \tfrac{1}{9} + \tfrac{1}{11} + \ldots + \tfrac{1}{15},$$

and show that 16 is a factor.

Solution by Constance I. Marks, B.A. (Lond.).

The given finite number of terms of this harmonic series may be rearranged in the order

$$(1+\tfrac{1}{15}) + (\tfrac{1}{3}+\tfrac{1}{13}) + (\tfrac{1}{5}+\tfrac{1}{11}) + (\tfrac{1}{7}+\tfrac{1}{9}) = 16(\tfrac{1}{15}+\tfrac{1}{39}+\tfrac{1}{55}+\tfrac{1}{63});$$

therefore 16 is shown to be a factor of the sum.

Again, the given series

$$= 1 + (\tfrac{1}{3}+\tfrac{1}{5}+\tfrac{1}{9}+\tfrac{1}{15}) + \tfrac{1}{7} + \tfrac{1}{11} + \tfrac{1}{13}$$
$$= 1 + (1+\tfrac{1}{3})(\tfrac{1}{3}+\tfrac{1}{5}) + \tfrac{1}{7} + \tfrac{1}{11} + \tfrac{1}{13}$$
$$= 1 + \tfrac{32}{45} + \tfrac{1}{7} + \tfrac{1}{11} + \tfrac{1}{13}$$
$$= 1 + \frac{6\cdot4}{9} + \tfrac{1}{7} + \tfrac{1}{11} + \tfrac{1}{13}$$

$$\begin{array}{rl|l}
= 1 & 0\,\dot{0}\,0\,0\,0\,0\,\dot{0} & 0\,0 \\
+ & 7\,1\,1\,1\,1\,1\,1 & 1\,1 \\
+ & 1\,4\,2\,8\,5\,7\,1 & 4\,2 \\
+ & 0\,9\,0\,9\,0\,9\,0 & 9\,0 \\
+ & 0\,7\,6\,9\,2\,3\,0 & 7\,6 \\
\hline
= 2 & 0\,\dot{2}\,1\,8\,0\,0\,\dot{4} &
\end{array}$$

$= 2\cdot022$ correct to 4 significant figures.

17632. (H. D. Drury, M.A.)—AB is a diameter of a circle, radius R; P, Q are any two points on the circumference. Show geometrically that

$$AP^2 + PQ^2 + QB^2 \pm (AP.PQ.QB)/R = 4R^2,$$

according as the points P, Q lie on the same side or opposite sides of AB.

Solutions (I) *by* W. F. Beard, M.A., G. W. Border, B.A., *and very many others*; (II) *by* H. Freeman, M.A.

(I) Draw QC perpendicular to AP on AP produced.

Triangles QCP, AQB are similar;

therefore $PC/PQ = QB/AB$;

therefore $2PC = PQ.QB/R$ ..... (i).

$$4R^2 = AB^2 = AQ^2 + QB^2$$
$$= AP^2 + PQ^2 + QB^2 + 2AP.PC$$
$$= AP^2 + PQ^2 + QB^2 + AP.PQ.QB/R \text{ from (i)};$$

if P, Q are on opposite sides of AB,

$$AQ^2 = AP^2 + PQ^2 - 2AP.PC.$$

N.B.—If AP, PQ, QB subtend angles α, β, γ at the circumference, then we have the trigonometrical theorem; if $\Sigma\alpha = 90°$, $\Sigma \sin^2\alpha + 2\Pi \sin\alpha = 1$.

(II) Since APQB is a cyclic quadrilateral,

$AP.QB + AB.PQ = AQ.PB$;

therefore

$$AP^2.QB^2 + 4R^2.PQ^2 + 4R.AP.PQ.QB$$
$$= AQ^2.PB^2$$
$$= (4R^2 - QB^2)(4R^2 - AP^2)$$
$$= 16R^4 - 4R^2(QB^2 + AP^2) + QB^2.AP^2.$$

Dividing throughout by $4R^2$,

$$PQ^2 + AP.PQ.QB/R = 4R^2 - (QB^2 + AP^2),$$

i.e., $$PQ^2 + QB^2 + AP^2 + AP.PQ.QB/R = 4R^2,$$

and similarly when Q is on the other side of AB.

12081. (J. Hammond, M.A.)—A. and B., who are partners at whist, have neither of them a card of higher value than a nine; find the chance of the occurrence of such an event, and the number of hands that must be played before there is an even chance of its recurrence.

Solution by A. M. NESBITT, M.A.

I find for the chance the value $\frac{1}{3}\,\frac{32!\,26!}{52!\,6!}$, which comes to

$$\frac{2}{51.47.43.41.777}.$$

The log of the denominator is equal to 9·51632, so that the denominator is 32834×10^5 about. Thus the chance of the thing happening is—by my working—1 in about 1642 millions.

There are many ways in which one may go astray in such a question; and I shall be glad if one of your readers will point out to me if that has been my own fate. Here is my argument.

It will not spoil the question if we take the first 13 cards as A.'s hand, and the second 13 cards as someone else's hand. Now, if these two hands consist entirely of cards ranging in value from 2 to 9, the first can be picked in $32!/(13!\,19!)$ ways, and the second in $19!/(13!\,6!)$ ways, so that the two may be picked in $32!/[(13!)^2\,6!]$ ways. But two such hands may be drawn in $52!/[(13!)^2\,26!]$ ways; the ratio between these is $32!\,26!/[52!\,6!]$. The required chance is one-third of this; since the second "Yarborough" may be any of three men, only one of whom is A.'s partner.

Denote this probability by p. Then the chance that *no* such event occurs in x trials is $(1-p)^x$: hence the chance that such an event *does* occur is $1-(1-p)^x$. Thus

$$(1-p)^x = \tfrac{1}{2},\quad x = -\log 2/[\log(1-p)].$$

Now $\quad \log_e(1-p) = -p,\quad$ and $\quad \log_e 2 = \cdot6931.$

So that the required number of hands is about 1150 millions.

12799. (J. J. BARNIVILLE, B.A.)—Prove that

$$1-\tfrac{1}{4}-\tfrac{1}{11}+\tfrac{1}{14}-\tfrac{1}{16}+\ldots = \tfrac{1}{2}+\tfrac{1}{7}+\tfrac{1}{8}+\tfrac{1}{13}-\tfrac{1}{17}-\ldots = \tfrac{2}{15}\pi\sqrt{3}.$$

Solution by the PROPOSER.

Let
$$A = 1+\tfrac{1}{14}-(\tfrac{1}{16}+\tfrac{1}{29})+\ldots = \pi/15\sin 12^\circ,$$
$$B = \tfrac{1}{2}+\tfrac{1}{13}-(\tfrac{1}{17}+\tfrac{1}{28})+\ldots = \pi/15\sin 24^\circ,$$
$$C = \tfrac{1}{4}+\tfrac{1}{11}-(\tfrac{1}{19}+\tfrac{1}{26})+\ldots = \pi/15\sin 48^\circ,$$
and
$$D = \tfrac{1}{7}+\tfrac{1}{8}-(\tfrac{1}{22}+\tfrac{1}{23})+\ldots = \pi/15\sin 84^\circ.$$

Then, since $\operatorname{cosec}12^\circ-\operatorname{cosec}48^\circ = \operatorname{cosec}24^\circ+\operatorname{cosec}84^\circ = 2\sqrt{3}$,

we have $\quad A-C = B+D = 2\pi/5\sqrt{3}.$

17624. (R. F. DAVIS, M.A. Suggested by Question 17533.)—Has the equation $y(x-4)^2 = x(3y+1)(y-3)$ any rational solution beyond $x=4$, $y=3$ or $-1/3$?

Solutions (I) *by* FREDERICK PHILLIPS, F.C.P., B.Sc., F.C.S.; (II) *by* D. BIDDLE.

(I) $\qquad y(x-4)^2 = x(3y+1)(y-3).$

Arranging as a quadratic in x, we have

$$x^2-x[(3y^2-3)/y]+16 = 0,$$

or $\quad x = [3y^2-3\pm\sqrt{(9y^4-82y^2+9)}]/2y;$

therefore $\quad x = \{3y^2-3\pm\sqrt{[(9y^2-1)(y^2-9)]}\}/2y;$

therefore, if
$$y=3,\quad x=+4\ \ldots\ldots\ldots\ldots(1),$$
$$y=-3,\quad x=-4\ \ldots\ldots\ldots\ldots(2),$$
$$y=\tfrac{1}{3},\quad x=-4\ \ldots\ldots\ldots\ldots(3),$$
$$y=\tfrac{1}{3},\quad x=+4\ \ldots\ldots\ldots\ldots(4).$$

Solutions (2) and (3) are additional to those suggested. The values $x=0$, $y=0$ also satisfy the equation.

(II) If x and y are neither zero, then, dividing both sides of the equation by xy, we have

$$x-8+16/x = 3y-8-3/y.$$

Let $y=mx$. Then $(3m-1)mx^2 = 3+16m$,

and
$$x = \left\{\frac{3+16m}{(3m-1)m}\right\}^{\frac{1}{2}}.$$

Any value of m that makes positive the quantity within brackets gives x a value, and y also. $m=\frac{3}{4}$ yields the value of x given in the Question, and the first value of y likewise; $m=-\frac{1}{12}$ yields the same value of x, and the second value of y; $m=\frac{1}{2}$, yields $x=2\sqrt{11}$, $y=\sqrt{11}$, and so on.

17642. (S. KRISHNASWAMI AIYANGAR, B.A.)—If ρ be the radius of curvature of the curve $r^m = a^m\sin m\theta$ at a point, whose distance, measured along the curve, from a fixed point is s, prove that

$$(m-1)(m+1)^2\rho.d^2\rho/ds^2-m(m+1)^2(d\rho/ds)^2-m(m-1)^2 = 0.$$

Also deduce, by giving special values to m the corresponding formulæ for

a parabola $\quad 3\rho.d^2\rho/ds^2-(d\rho/ds)^2-9 = 0,$

a cardioide $\quad 9\rho.d^2\rho/ds^2+9(d\rho/ds)^2+1 = 0,$

a lemniscate of Bernoulli $\quad 9\rho.d^2\rho/ds^2-18(d\rho/ds)^2-2 = 0,$

and a rectangular hyperbola $\quad 3\rho.d^2\rho/ds^2-2(d\rho/ds)^2-18 = 0.$

These results can also be established independently.

Solution by Professor R. SRINIVASAN, M.A., *and* W. N. BAILEY.

For the curve $r^m = a^m\sin m\theta$,

$$\phi = m\theta,\quad \rho = a^m/[(m+1)r^{m-1}],\quad p = r^{m+1}/a^m;$$

therefore $\quad d\rho/ds = d\rho/dr.\cos\phi = (1-m)/(1+m).a^m/r^m.\cos m\theta$
$$= (1-m)/(1+m)\cot m\theta\ldots\ldots(1)$$

therefore $\quad d^2\rho/ds^2 = \{[m(m-1)/(m+1)].\operatorname{cosec}^2 m\theta\}\,d\theta/ds;$

therefore $\quad \rho(d^2\rho/ds^2) = \{[m(m-1)/(m+1)^2]\operatorname{cosec}^2 m\theta\}\,a^m/r^m.rd\theta/ds$
$$= [m(m-1)/(m+1)^2]\operatorname{cosec}^2 m\theta$$
(because $rd\theta/ds = \sin m\theta$)

therefore $\quad (m-1)(m+1)^2\rho(d^2\rho/ds^2)-m(m+1)^2(d\rho/ds)^2$
$$= m(m-1)^2\{\operatorname{cosec}^2 m\theta-\cot^2 m\theta\} = m(m-1)^2$$

which is the required result.

For the parabola, $m=-\frac{1}{2}$,
,, cardioide, $m=\frac{1}{2}$,
,, lemniscate, $m=2$,
,, rectangular hyperbola, $m=-2$.

Substituting, we get the given relations.

QUESTIONS FOR SOLUTION.

Erratum.—In Question 17673, *for* "X^4+Y^4," *read* "$2(X^4+Y^4)$."

17688. (A. W. H. THOMPSON.)—A heavy rigid body symmetrical about a plane moves in a resisting fluid, which is such that the resulting fluid motion is in accordance with the symmetry of the body. Consider the small oscillations about the steady motion. I. Show that (1) when the steady motion is such that there is no rotation, the small oscillations break up into two sets (A) and (B); whereof (A) is independent of (B), but (B) is not independent of (A): and unless there is no rotation, the set (A) is not independent of (B). (2) The sets (A) and (B) are independent only when there is no rotation in the steady motion, and the linear motion is in the plane of symmetry. (3) With the assumption that the resistances of the fluid depend only on the velocities of the body, show that the small oscillations are determined by an equation of the eighth degree: and that in the degenerate case (1) the set (A) is determined by a quartic and likewise the set (B). II. Show that the effect of a gyroscope revolving in the plane of symmetry and whose centre of mass coincides with the centre of mass of the body, is to alter the derivatives in regard to certain components of angular velocity of certain resistance couples by the angular momentum of the gyroscope.

17689. (C. M. ROSS, M.A.)—If $F(x, y, z)$ be a homogeneous function of x, y, z which becomes $\phi(u, v, w)$ by the elimination of x, y, z by means of the equations

$$\partial F/\partial x = u,\quad \partial F/\partial y = v,\quad \partial F/\partial z = w;$$

prove that $\quad (\partial\phi/\partial u)/x = (\partial\phi/\partial v)/y = (\partial\phi/\partial w)/z.$

17690. (W. E. H. BERWICK.)—Prove that $S_n(x)$, the rational integral function of x of degree $n+1$, which when x is a positive integer equals $\quad 1^n+2^n+3^n+\ldots+x^n,$

is an even or odd function of $2x+1$ according as n is odd or even. Expand this function in the form

$$\frac{1}{2^n}\left[\frac{(2x+1)^{n+1}}{2(n+1)}+\sum_{t=1}^{t=r}(-)^t I_t\frac{n!\,(2x+1)^{n+1-2t}}{(2t+2)!\,(n+1-2t)!}\right],$$

where $r=\frac{1}{2}n$ or $\frac{1}{2}(n+1)$ according as n is even or odd, and

$$I_1 = 2,\quad I_2 = 7,\quad I_3 = 41\tfrac{1}{3},\quad I_4 = 381,\quad I_5 = 5110.$$

Obtain also a recurrence relation for the constants I_t and evaluate them as far as I_{10}.

17691. (Professor E. J. NANSON.)—Defining a proper recurring series as a recurring series whose generating function is a proper fraction, prove that, (1) if the first $2r$ terms are given, a proper series of order r is in general determined; (2) if the persymmetric determinant formed with the first $2s-1$ terms be denoted by P_s and $P_r = 0$, $P_{r-1}\neq 0$, then the first $2r-2$ terms determine a proper series S_{r-1} of order $r-1$ which contains the $(2r-1)$-th term; (3) the given series cannot be continued as a proper series of order r unless the $2r$-th term belongs to S_{r-1}; (4) when this is the case, the scale of the given series is indeterminate and is the product of the scale

of S_{r-1} and of the scale of an arbitrary geometrical progression; (5) the continuation of the given series by this arbitrary scale is unique and coincides with S_{r-1}; (6) if $P_r = 0$, $P_{r-1} = 0$, ..., $P_{r-s+1} = 0$, $P_{r-s} \neq 0$, then the first $2(r-s)$ terms determine a proper series S_s of order s, which contains the next s terms of the given series; (7) the given series cannot be continued as a proper series of order r unless S_s contain the remaining S given terms; (8) when this is the case, the scale of the given series is indeterminate and is the product of the scale of S_s and of the scale of an arbitrary recurring series of order $r-s$; (9) the continuation of the given series by the arbitrary scale is unique and coincides with S_s.

17692. (Lt.-Col. ALLAN CUNNINGHAM, R.E.)—Show that the Bin-Aurifeuillian $N = (x^4+y^4)$ is algebraically resolvable into four factors, say $N = PQRS$ in the following cases [ξ, η integers]:—

(1) $x = \frac{1}{2}\eta^4 - \xi^4$, $y = \xi^3\eta$; (2) $x = \eta^4 - 2\xi^2$, $y = 2\xi^3\eta$;

(3) $x = 2\eta^4 - \xi^4$, $y = 2\xi\eta^3$;

find the four factors P, Q, R, S in each case. Give one numerical example of each case.

17693. (Professor NEUBERG.)—Pour quelles valeurs entières de x, y, z l'expression $N = 5^x + 7^y + 11^z$ est-elle divisible par 13?

17694. (G. W. BORDER, B.A.)—Solve the equations

$$x^2 + 2yz = a, \quad y^2 + 2zx = b, \quad z^2 + 2xy = -(a+b).$$

17695. (C. E. YOUNGMAN, M.A.)—If three normals (or tangents) to a tricusp meet at a point, the corresponding tangents (or normals) make a triangle whose circum-radius is equal to the diameter of the circle of vertices (or cusps).

17696. (R. VYTHYNATHASWAMY.)—A curve is such that AB being any arc, T intersection of tangents at A and B, and G the centroid of the arc AB, then GT always passes through a fixed point. Find the form of its equation.

17697. (S. KRISHNASWAMI AIYANGAR, B.A.)—At every point of a parabola tangents are drawn equal in length to the portion of the parabola intercepted between the vertex and the point in question. Show that the locus of the extremities of such tangents is

$$x = 2at^2 + at\left\{\log\left[t + \sqrt{(1+t^2)}\right]\right\} / \sqrt{(1+t^2)},$$
$$y = 3at + a\left\{\log\left[t + \sqrt{(1+t^2)}\right]\right\} / \sqrt{(1+t^2)}.$$

17698. (Professor K. J. SANJÁNA, M.A.)—Taking the parabolas (1) $y^2 = 4ax$, (2) $y^2 = a(x-3a)$, and the cubics

(3) $27ay^2 = 4(x-2a)^3$, (4) $27ay^2 = (x-5a)^2(2x-a)$,

prove that the intersections of (1) with (3) and two of (2) with (4) lie along $x - 8a = 0$; that (2), (3) and (4) have a common chord along $2x - 7a = 0$; and that the equation of the common tangents of (2) and (3) is $8y^2 = (2x-5a)^2$. Find the equation of the common tangents of (2) and (4); also the areas of the parts into which the loop of (4) is divided by (2) and (3).

17699. (W. F. BEARD, M.A.)—ABC is a triangle; a parabola touches BC, CA, AB at X, Y, Z; the tangent parallel to AX meets BC, CA, AB at K, L, M. Prove KM + KL = AX.

17700. (F. G. W. BROWN, B.Sc., L.C.P.)—The auxiliary circle of an ellipse whose major axis is AB, cuts the minor axis OP produced in Q, and a parabola passing through A and B cuts PQ at its mid-point R; show that the areas AQB, ARB, APB cannot be in arithmetical progression, but they may be in geometrical progression, and in this case the eccentricity of the ellipse is 0·9513.

17701. (A. M. NESBITT, M.A.)—If S, S′ be centres of similitude of two circles C, C′, the circles subtend equal angles at any point of the circle on SS′ as diameter.

17702 (*Communicated by* V. V. S. NARAYAN.)—ABC is a triangle of given perimeter. If the vertex A is fixed and BC is of constant length, find the locus of B when C describes (1) a straight line, and (2) a conic.

17703. (C. H. HARDINGHAM.)—(1) With the ruler only divide a side of a parallelogram in the ratio of two given integers, and (2) proceed to find the centre of gravity of any given rectilineal figure or centre of heavy particles in the plane.

17704. (R. F. DAVIS, M.A.)—ABC is a triangle whose circumcentre is O. If M is the isogonal conjugate of N (the nine-point centre), prove that MN passes through the Euler point Φ on the circum-circle, and that $MO^2 = MN.M\Phi$. (Suggested by a theorem due to Mr. C. E. M'Vicker.)

17705. (Professor J. C. SWAMINARAYAN, M.A.)—E, F, G, H are the mid-points of the sides AB, CD, BC, AD, respectively, of a spherical quadrilateral ABCD, of which a, b, c, d are the sides, and e, f are the two diagonals. Show that if EF, GH intersect at P,

$$\cos PA + \cos PB + \cos PC + \cos PD$$
$$= \sqrt{[4 + 2(\cos a + \cos b + \cos c + \cos d + \cos e + \cos f)]}.$$

Also prove that, if the three medians of a triangle ABC are concurrent at G,

$$\cos GA + \cos GB + \cos GC = \sqrt{[3 + 2(\cos a + \cos b + \cos c)]},$$

with the usual notation.

OLD QUESTIONS AS YET UNSOLVED (IN OUR COLUMNS).

12018. (J. J. WALKER, F.R.S.)—Let A, B be points on a line determined by $(a, b, c \between x, 1)^2 = 0$, C, D, two other points on the same line determined by $(a', b', c' \between x, 1)^2 = 0$; prove that the values of the double or cross ratios

$$AC.DB : AB.DC, \quad AD.CB : AB.CD$$

are the roots of $4II'(2\lambda - 1)^2 - J^2 = 0$, where I, I′, J are the invariants of the quadratics.

12110. (D. EDWARDES.)—Into an empty circular box, two counters are thrown at random; prove that the chance that they lie wholly apart is $\{\sin\beta(2+\cos\beta) - \beta(1+2\cos\beta)\}/\pi$, where β is the supplement of the angle subtended by either counter at the centre of the box, when placed in contact with its side and $\beta > \frac{2}{3}\pi$.

12599. (Rev. T. R. TERRY, M.A.)—A rod AB, of length a and weight W, is supported by two pegs D and E, at distances $\frac{1}{3}a$ and $\frac{1}{4}a$ from A and B respectively. From A and B are suspended weights w and $3w$, and the rod breaks. Find the position of the point of breakage, and show that for no value of the ratio $w : W$ can this point lie between D and E. Discuss fully the cases (1) when $w = 0$, (2) when $W = 0$, (3) when $120w = 7W$.

12668. (Professor SYLVESTER.)—If s_1, s_2, s_3, s_4, s_5, s_6 be the sums of the six quantities x, y, z, t, u, v, and of their binary, ternary, quaternary, quinary, and senary combinations, respectively; and if E be the emanation symbol

$$a.d/dx + b.d/dy + c.d/dz + d.d/dt + e.d/du + f.d/dv;$$

prove (1) that the resultant of s_1, Es_2, s_3, Es_4, s_5, Es_6 is made up exclusively of powers of linear factors of the forms $a-b$, $a+b-c-d$, $a+b+c-d-e-f$; and (2) determine the power in which each such form enters into the resultant.

12940. (Professor WHITE.)—Prove that

$$\int_2^1 \frac{x^{a-1} + x^{-a}}{1+x}\,\frac{dx}{x} = \log(\tan\tfrac{1}{2}a\pi), \quad \text{when} \quad a > 0 \text{ and } < 1.$$

13343. (Professor COCHEZ.)—Étudier la fonction $y = (x^{2x}/e^x)$. Étudier la fonction $y = e^{\pm\sqrt{(\cos x)}}$.

NOTICE TO CORRESPONDENTS.

It is requested that all Mathematical communications should be sent to the Mathematical Editor,

Miss CONSTANCE I. MARKS, B.A., 10 Matheson Road, West Kensington, W.

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THE LONDON MATHEMATICAL SOCIETY.

Thursday, February 12, 1914.—Prof. H. F. Baker, F.R.S., Vice-President, in the chair.

Messrs. W. E. H. Berwick and A. G. Veitch were elected members of the Society.

Prof. S. B. Maclaren was admitted a member of the Society.

Mr. G. T. Bennett gave an exhibition and an account of certain models illustrating his paper "On the Skew Isogram Mechanism," read at the November meeting.

Dr. W. F. Sheppard read a second paper on "Fitting of Polynomials by the Method of Least Squares."

Mr. S. T. Shovelton made an informal communication in reference to his third paper read at the January meeting.

The following papers were communicated from the chair:—

"Formulæ for the Spherical Harmonic $P_n^{-m}(\mu)$, when $1-\mu$ is a small quantity": Prof. H. M. Macdonald.

"The Representation of the Symmetrical Nucleus of a Linear Integral Equation": Prof. E W. Hobson.

"The Differential Geometry of Point Transformations between Two Planes": Mr. H. Bateman.

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CONTENTS.

	Page
Leader: The A.M.A.	171
Notes	172
The Teaching of English—The Rugby Scheme—Grammar and Discipline—Postponed Legislation—Need for Increased Grants—The Private Schools Inquiry—The Future of Private Schools—Truncated Scholarships—Vocational Education—The Register—Accepted Institutions—Sixty Years Ago—Cambridge and State Aid—Ambidexterity—The Society of Education—The Kinema—The Association of Assistant Mistresses—Forthcoming Articles—Latest News.	
Summary of the Month	176
The Workers' Educational Association	177
The College of Preceptors:—	
Professional Preliminary Examination—Pass List	179
Meeting of the Council	180
Practical Examination for Certificates of Ability to Teach—Pass List	180
The Teaching of English. By Rev. A. A. David	180
The Children's Commonwealth: Mr. Cecil Chapman as a Story-teller. By Mrs. Stewart Horner	182
The Lighter Side of Pedagogy	183
Poetry: Der Zeit-Geist	183
Current Events	184
Prize Competition	184
Sane Sex Teaching—Introductory. By Dr. Eric Pritchard.	187
Evening Continuation Schools: a Necessary Evil. By Dorothy M. Zimmern	188
The Relations of Science and Industry. By Sir Alfred Keogh	190
Reviews	192
The Hamptonshire Experiment in Education (Ashbee); From Locke to Montessori (Boyd); Problems of Village Life (The Home University Library); Principles of Property (Kinnear); Unemployment (Home University Library); Overseas: The Rise of the Saracens and the Foundation of the Western Empire (Cambridge Medieval History, Vol. II); A General Course of Pure Mathematics (Bowley); The Theory of Relativity (Carmichael).	
General Notices	197
Publications Received	201
Mathematics	202

The Educational Times.

THE A.M.A.

The familiar title A.M.A. is still used in speaking of the Incorporated Association of Assistant Masters in Secondary Schools, the twenty-third Annual Report of which we have just received. The membership now stands at over five thousand—a remarkable example of the progress possible when an organization supplies an admitted want. Twenty-three years ago it was a small and somewhat timid group of assistant masters that met in the hope of forming an association that should voice the aspirations, views, and aims of a number of hitherto isolated units. The work has been well done and the Association may now fairly claim to be representative of assistant masters in all types of secondary schools. Year by year the numbers have grown, and the growth has been accompanied by an increased sense of responsibility together with an increased power of sound judgment and decisive action.

Numbers in themselves have great weight, as the leaders are strengthened by the feeling of wide support; but numbers also may mean, and in this case do mean, a greater financial stability. Money in the bank is a great moral support. From the income and expenditure account published in the report we learn that the subscriptions of members amounted to over £1,800. Of this total sums amounting to £350 were assigned to the Legal, Benevolent, and Orphan Scholarships Funds. There is a net cost of about £200 on the organ of the Association, the *A.M.A.* After other expenses have been met, the sum of £285 remains as the balance of income over expenditure. The balance sheet shows nearly £4,000 accumulated funds. This is very satisfactory and shows capable management.

Much important work in making clear the position of assistant masters and in preventing injustices is done by the Legal Sub-Committee. During the year 114 cases were investigated; all of these were settled except three, which, at the time of the issue of the report, were still under discussion. The analysis of the cases is instructive—seven agency disputes, six disputes as to notice, eleven harsh or illegal dismissals; two cases concerned salaries during illness, eleven dealt with the payment of substitutes, two unpaid salaries, five injuries at athletics; insurance difficulties, income tax, loss through fire, and sundry points made up the total. The grievance of eleven months' salary for a year's work has not yet been definitely redressed. There were eleven such cases. Since the introduction of monthly payments it has become difficult to secure the salary for August, when the master leaves in July. A master cannot, in our opinion, be said to be out of employment during the regular school holidays. The Insurance Commissioners have given a decision on this point that may be convenient, but which seems to us to be quite illogical. They have decided that when a man leaves a school in July to take up another post in September he is unemployed for a time and must himself stamp his insurance card; on the other hand, if he resumes work at the same school, the school authorities must contribute their share.

The Education Sub-Committee has been occupied in an interesting experiment designed to discover how far it is possible to estimate the moral and intellectual qualities of the pupils. It is a charge brought against school examinations that they evaluate certain qualities only, leaving other qualities entirely out of account. These omitted qualities, which may be conveniently summed up under the heading of "Character," are of course of first-rate importance, and are omitted for no other reason than the difficulty in assessing them. The method proposed by the Assistant Masters' Association has been tested by twenty-six teachers in seven schools, and much useful experience has been gained, which will enable the Sub-Committee to revise the scheme and carry out further experiments. The method is to take a list of moral qualities, and for each master to say whether the pupil possesses the quality, and in what degree. The results of the experi-

ment, as far as it has gone, have been submitted to Prof. Nunn.

An idea of the position of the Association is gained from the list of public bodies to which representatives have been appointed by the Association. There are twenty such outside bodies that have invited co-operation.

The one weakness, and that necessarily inherent in the constitution, is that members are constantly leaving to become head masters. This weakness the Association has always minimized by working cordially with the Head Masters' and other Secondary Associations. The Report gives a list of former officers of the A.M.A., and it is interesting to notice the various branches of work that have been taken up. Eleven have become head masters, one the principal of a private school, eleven remain assistant masters, three are working on the administrative side of education in county offices, five have given up teaching and are engaged in journalism and in the examination and inspection of schools, or in literary work. One only, we believe, has died. It is noticeable that the Board of Education have taken one only of the officers on to the inspectorial staff at Whitehall, and that quite recently, though another officer was for a time employed as an occasional inspector.

We might go on to speak of the Joint Agency, the Benevolent Fund, the Joint Pensions Committee, and several other activities; but we have said enough to indicate that the Association is working vigorously on sound lines for the benefit of secondary schools in general and of assistant masters in particular.

NOTES.

The Teaching of English.

Dr. David, Head Master of Rugby School, introduced a discussion on the teaching of English at the last of the winter meetings arranged for members of the College of Preceptors. For some years past there has been a growing uneasiness about our neglect of the mother tongue. The older theory that one learnt one's own language through the medium of another, preferably Latin, prevailed, and still prevails, though with lessening influence. Throughout schools generally there has been an increasing desire shown during recent years to make the study of English genuine and fruitful. At first the subject seemed so enormous that teachers were apt to lose their way or to limit their work to one or another side, to the exclusion of the rest. Truly English as a school subject presents many difficulties. But teachers are ready and ask only for guidance. It is significant that a definite movement for practical reform should come from one of the older public schools. One might have expected that the movement would begin in preparatory schools, for the mother tongue should be the first language to be tackled. The preparatory schools would say that the public schools force them to devote all their energies to foreign languages.

The Rugby Scheme.

The scheme of teaching that is being tentatively introduced at Rugby, the scheme that formed the basis of Dr. David's lecture, has three definite objects. In the first place, it aims at teaching a boy to write, to set forth his own thoughts sincerely and simply in clear and orderly fashion and with directness; to explain and describe with steady reference to those to whom he addresses himself. In the second place, the desire is, by giving him practice, to teach a boy to express himself in speech with as near an approach as possible to the deliberate clarity, order, and directness of the written word. The third aim is to enable a boy to read with consecutive attention and intelligence. To explain in detail how these aims are carried out at Rugby is not possible in the limits of a Note. In another column we give a brief report of Dr. David's address. Our readers would do well to procure a copy of the "Notes on the Teaching of English" that Dr. David has issued. These claim to be only tentative and experimental, but they are full of helpful suggestion. In August there is to be a Conference of Teachers of English at Stratford-on-Avon, from which much may be hoped.

Grammar and Discipline.

At the discussion that followed Dr. David's address many interesting points of view were put forward. Mr. Cholmeley told a story of Mr. Dunn, once Head Master of Bath College, who, at a meeting of head masters, jumped up to interrupt a speaker who was pointing out the value of a cadet corps as an aid to discipline, and exclaimed "Discipline is the ruin of schools." Mr. Cholmeley suggested that discipline might have been the ruin of the English lesson. It is the problem for teachers to find out what boys want to say and to make them wish to say it. The formal lesson kills spontaneous expression. Other speakers referred to the necessity of grammar. We venture to think there is a misunderstanding here. Clear speech or writing cannot be attained without a knowledge of grammar. But the expression must come before the rule. A boy begins to speak or write and finds out the need of grammar; he learns its rules bit by bit as he needs them: this is the fruitful method. Teaching grammar rules apart from their use is the very "discipline" that has ruined the teaching of English in the past, and has made the grammar lesson so unpopular.

Postponed Legislation.

The prospects of the immediate introduction of an Education Bill are no more favourable than they were a month ago. The Cabinet is fully occupied with matters that are deemed of greater importance than progress in a system of national education. In the meantime, the Free Church Council is showing signs of unrest, and Mr. Pickett warned the Government that there was a limit even to the patience of Free Churchmen. The Bishop of Salisbury, on the other hand, is hopeful of a new and more tolerant spirit in education and thinks that when

the promised Bill is produced, it will be found to be animated by a fuller realization of the importance of education apart from religious controversy. We said last month that increased Treasury Grants are needed rather than administrative legislation. This view is borne out by a recent decision of the Board of Education. In 1909, the Board issued a notice that supplementary teachers would cease to be recognized (except in certain special cases) after August, 1914. Yielding to the pressure of Local Authorities the Board are now reluctantly compelled to postpone the date because the supply of teachers is insufficient. This, of course, means that, while salaries remain as they are, men and women are attracted to other occupations. The Local Authorities are not likely to make much improvement in salary scales until they get an increased grant from the Board.

Need for Increased Grants.

HEREFORDSHIRE pleads poverty while receiving from the Board nearly 70 per cent. of the cost of education in the county. London also pleads poverty because the Education Committee receives from the Board of Education 28 per cent. only of its expenditure. The Board of Education is to be asked to receive a deputation on this subject. The County Council claim that the National Exchequer should pay 50 per cent. of the cost of education. If this were done, London would receive an additional grant of at least £1,500,000—a sum which would reduce the education rate by 8d. Education is more of a national than a local service. Children in London are not educated for London alone, and even in the matter of teachers there is no guarantee that those trained largely at the cost of the London rate-payer will remain to work in London. From the financial point of view, this would not matter if the burden were fairly equal throughout the country; but the London rate is more than four times as much as the rate in some other districts in England. It is not encouraging for an area like London to find that the more efficient its educational service becomes the smaller the proportion of the cost that is met by the State.

The Private Schools Inquiry.

MR. J. F. P. RAWLINSON, member for the University of Cambridge, shows great regularity in attendance as a member of the Council of the College of Preceptors, and he has been of valuable assistance to the Committee entrusted with the work of presenting to the Board of Education the results of the Inquiry undertaken by the College and the Association of Private Schools. It is still under consideration, we believe, how the information that has been compiled may be brought to the notice of the Board of Education in the most forcible way. And we can at present give no further details. It is known that a number of private schools refrained from filling up the forms sent them. These schools have taken their decision, and they will have to abide by it. In our opinion the choice has been put before private schools, either to organize and to become part of a national system of education under the (partial) control of the Board, or to stand outside the system. Those that elect to stand outside to do so at their own risk, and we feel sure, though we say it with great reluctance, that the greater part will yield to State competition and cease to exist.

The Future of Private Schools.

THE term "private" applied to schools not under a scheme of government and not in receipt of State grants, covers a variety of educational institutes. There are schools, comparatively few in number (such as Bedales and Abbotsholme, to mention two only that happen to be well known), that offer a specialized form of school life and appeal to well-to-do parents. These schools are likely to be unaffected by State competition. We hope they will long remain free and unfettered to carry out valuable experiments. There are also private schools, charging high fees, and supported very largely by a tradition of social exclusiveness that dislikes large schools under public management. These schools also have, so far as we can foresee, a long lease of life before them. But undoubtedly the greater number of private schools are in direct competition with the schools supported by grants of public money. These schools, unless they make terms, will be crushed out of the field by a gradual and painful process. The Local Authorities will not inquire what schools they are about to injure. The schools must themselves come forward and say what part they are prepared to play in the local supply of education. They must act at once or it will be too late.

Truncated Scholarships.

NEWS reaches us that some of the colleges at Cambridge have acted in a way to cause much dismay no less among holders of scholarships than among the authorities of the secondary schools that send in competitors. It is usual to appoint a scholar or an exhibitioner for two years, with the prospect of a renewal of the grant on good behaviour. The object of the regulation is merely to give the college a control over the scholar. Before this regulation was introduced it was possible for a scholar, feeling secure in his position for the whole of his University life, to lapse into idleness. Under the new regulation, if a scholar ceases to work steadily, he runs the risk of failing to have his scholarship renewed. This is salutary. But the grievance is, as we are informed, that some colleges have during the past year or two abstained from continuing the scholarship on no ascertainable ground, and so have left meritorious students short of money in the middle of their University career. It can hardly be that the colleges wish to use the money thus set free in order to attract newcomers, or that they will fail to see the injustice of their action as it now has, we understand, been brought to their notice.

Vocational Education.

IT is comforting to learn from Sir Philip Magnus, in the March number of the *Nineteenth Century*, that "we do not lag behind Germany" in the matter of vocational

education. To justify such a statement Sir Philip has made the closest inquiries. He urges that we need more manual instruction in schools, and that we must free ourselves from the "traditional academic influence of those who are mainly responsible for the control" of education. This is to be done not merely in order to turn out more capable worken, the natural aim of the employer, but in order to provide everyone, so far as possible, with the mental, moral and physical equipment which is the final aim of self-development and which best fits us for complete living. Sir Philip does not feel that we have as yet sufficient experience to enable us to judge of the value of a school course largely based on handicraft, and he thinks that the matter must be settled by experiment and not by theorists. In the March number of the *English Review* Miss C. Smith-Rossie tells us most emphatically that as a nation we are doomed unless we introduce at once, and compulsorily, the system of continuation education that is associated with the name of Dr. Kerschensteiner in Munich.

The Register.

The College of Preceptors has, for more than fifty years, worked steadily towards the formation of a teachers' register as a necessary step in the provision of a highly skilled body of men and women to work in our schools. It is a matter of satisfaction that the register is now opened. It is certain that in the future everyone entering the profession will endeavour to acquire the qualifications that are needed for registration under the permanent conditions. It behoves all members of the College of Preceptors, from loyalty to the principles for which the College has stood, to apply for admission under the temporary conditions. As teachers they will be neither better nor worse than before; but they will have shown their desire to help in the consolidation of the profession. The guinea payable once only is a negligible sum; and the trouble is very slight. The temporary conditions are these: the applicant must be over twenty-five years of age, have taught for five years in an Accepted Institution, and pay a guinea.

Accepted Institutions.

The difficulty in deciding that a school or institution shall be placed on the list of "Accepted Institutions" is the most troublesome that the Registration Council have to meet, because in many cases there is no information available. To meet this difficulty the Council are issuing a circular of inquiry, the salient points of which we give in the "Summary of the Month." The questions asked are in no way inquisitorial; but it is evident that when an application for registration is based on experience at a certain school the Council must be satisfied of the *bona fides* of the school. We are assured that the Council will interpret this condition of experience in a recognized school in a very liberal manner. The answers to the inquiry will, of course, be confidential; and, the school once placed on the "List of Accepted Institutions," there will be no further trouble. Any applicant basing his claim on experience in that school will be accepted.

Sixty Years Ago.

The more one digs in the past the more likely one is to realize the truth of the saying that there is nothing new under the sun. Our present researches are not very deep: they go back sixty years only, to the number of *The Educational Times* published in April, 1854. There we find under the title of "Passages from the Journal of a Subaltern" a discussion on the value of Latin as a school subject. The writer had overheard the clerk of a school agent say to a youth applying for a post, "No Latin, none at all." The reply of the youth was: "Thank goodness! Latin is going down in all good schools." That is sixty years ago, and Latin is not yet extinguished. The article goes on to give reasons for the unpopularity of Latin, and except for a few differences in vocabulary, might have been written to-day by a modern supporter of classical learning. He points out that slavish devotion to grammar and verbal criticism had made Latin disliked by boys; but that he himself found no difficulty in interesting his pupils. He introduced into his lessons all kinds of illustrations and literary allusions: he sternly repressed grammar and kept it in its place.

Cambridge and State Aid.

The proposal of the Medical School of Cambridge University to ask the Board of Education for a grant in aid of expenses aroused a very wide discussion and met with determined opposition; but it was carried by a majority of 33 out of 503 voters. It was felt by many that to apply for State aid was to put the University under the gradually extending control of the Board of Education. In reply it was urged that the conditions under which the grant of some £4,000 would be made were known, and would in no way prove onerous; and further that without the grant it would be difficult to carry on the medical department. The argument that State aid once accepted would tend to diminish the flow of private benefactions was, of course, used. We think the majority have decidedly wisely. There is, in our opinion, absolutely no fear that a government department can act oppressively towards the University of Cambridge, which is strong enough to resist ill-considered dictation even if the Board were so unwise as to propose it. On the other hand we think it a matter of first-rate importance that the University of Cambridge, one of the natural leaders of education in the country, should indicate a willingness to co-operate with the Board of Education.

Ambidexterity.

Last month Dr. Macnaughton-Jones contributed to our columns an important article indicating the possibilities that lay in the development of the use of the left hand. Almost at the same moment the Berlin school authorities issued

a report of an experiment, lasting for two and a half years, in teaching children to use the left hand equally with the right. The Berlin correspondent of the *Westminster Gazette* tells us that the experiment is considered to have failed. Prof. Dickhoff's conclusion is that "left-culture" means, not division of labour and gain in working capacity, but loss of working capacity and waste of energy. The *Westminster* account adds: "This German result is contrary to the results recorded by Tadd in Philadelphia in training to ambidexterity in manual work, and also contrary to the results reported last year by the Austrian Heding, who declared that children after six months' training wrote equally well with left and right hands." It seems quite clear that further experiments must be made before any definite conclusion can be made.

The Society of Education.

THE meeting of representatives from thirty-one educational bodies summoned by the Teachers' Guild to consider the formation of a Society of Education has been adjourned until May 9, in order that the considered opinions of the associations may be obtained. The aim of the movement is, in the words of the promoters, to form a society in order "to focus educational opinion and to serve as a clearing-house for educational research." There is certainly a need for a society of this character, and the Guild should have no difficulty in bringing about its formation. The Guild stands in a unique position among the sectional bodies of teachers, as it includes in its membership men and women of all shades of opinion and representing all grades of education. It has done and continues to do useful work, and we are sure that this, its latest effort, will meet with success. We hear of the proposed formation of an Educational Research Society. There is certainly no room for two societies of this kind. Each would be weakened by a division, and we hope that the enthusiasts in each camp may decide to co-operate.

The Kinema.

DISCUSSION continues to rage round the kinema—its value, its possibilities, its dangers. At the annual dinner of the kinematograph Exhibitors' Association Canon Rawnsley and the Head Master of Eton were charged with making an unjustifiable attack upon the people's amusements. There is a good deal of confusion of thought. It is said that the kinema "is the cleanest, the most harmless, and in a broad sense the most educative form of popular amusement the world has ever known." With this opinion we have no quarrel. It is, of course, easy to criticize the films, but "in a broad sense" they are as valuable and as harmless as the performances at theatres. As a popular amusement we have no charge to make against the kinema; in a wide and general sense it is "educative." But more than this is claimed. We are bidden to accept existing films as helpful in the teaching of school subjects. It is here we raise objections, and repeat what we have said before, that producers of films must have some knowledge of methods of teaching and of child psychology before we can advocate the introduction of the kinema as part of the school course.

The Association of Assistant Mistresses.

WE have received the Report of the thirtieth year's working of the Incorporated Association of Assistant Mistresses in Public Schools. The Association was founded in 1884, six years before the foundation of the Head Masters' Association and seven years before that of the Assistant Masters. The Report indicates a year of great activity. Full reasons are given why the Assistant Mistresses felt themselves bound to join with the Head Mistresses in placing themselves in opposition to the policy of the men's Association in the matter of the basis on which State grants to secondary shools should be paid. We have given those reasons in full in our February number. Attention has been paid to the position of the chief assistant mistress in mixed schools, and efforts have been made to ensure a suitable status. In our opinion, it is essential for the wellbeing of pupils in such schools that the senior mistress should rank as head mistress so far as the girls are concerned. The finances of the Association appear to be sound, and a considerable sum has been transferred to the Reserve Fund. The membership now stands at 1,700.

Forthcoming Articles.

WE begin the series of "Sane Sex Teaching" this month with an introductory article by Dr. Eric Pritchard. The aim is to show the reasonableness of including instruction in the care of the body in any sound system of education. Sixty years ago, when John Ruskin was lecturing on education, he claimed that every child should be taught the "laws of health and the exercises enjoined by them." Next month we shall begin a series of articles on "Careers for Girls." Each article will be written by a woman who has adopted the career in question, and such information will be given as may help parents and teachers in advising girls as to the choice of a profession. The introductory article will be written by Mrs. W. L. Courtney (Miss Janet Hogarth), who was the first to organize a staff of women clerks at the Bank of England, who has been librarian of the *Times* library, and whose knowledge of the conditions of women's work in commercial and Civil Service spheres is probably unrivalled. Subsequently we shall have a number of articles dealing with the teaching of English. Dr. David will write of the system in force at Rugby, to the remarkable results of which in producing freedom and sincerity in the use of the language wide testimony is borne.

Latest News.

THE latest news of the Registration Council is that two important alterations have been made in the temporary conditions. To meet the case of those who are in the midst of their University Course an additional two years have been allowed, and the first of the alternative conditions will now read, "up to and including December 31, 1920" (instead of 1918). The first clause of the Appendix has been

cancelled, and the following put in its place: "A certificate of having passed the Final Degree Examination of any University approved by the Council for the purposes of Registration, under such conditions as to courses of study and preliminary examinations as may be accepted for the time being by such University." This is to meet the case of certain students who are admitted to the final examination for a degree without taking all the preliminary examinations. The formation of the Register is proceeding as rapidly as possible. The preparation of the certificate takes some time. Among the early applicants are found cases involving certain principles which take time to settle. Shortly the matter will become almost automatic. At present applications are coming in to the number of 150 a week. Two of the latest applicants are Sir Oliver Lodge and Dr. R. P. Scott, Chairman of the former Registration Council.

SUMMARY OF THE MONTH.

An A.M.A. Sustentation Fund.

As the result of a resolution passed at the January Council Meeting of the Incorporated Association of Assistant Masters the Branches are to be asked to consider the advisability of establishing a Sustentation Fund, and, if such a fund should be established, to decide upon its precise object or objects and means by which it is to be maintained. It is suggested that a definite vote, with a record of the numbers voting for or against, or not voting, should be taken on each of the following points:—

1. Are you in favour of the establishment of a Sustentation Fund by whatever means for one or more of the following objects? (i) for maintaining members of the I.A.A.M. in cases of unjust dismissal during negotiations; (ii) for maintaining members of the I.A.A.M. in cases of unjust dismissal pending new appointments; (iii) for fighting such cases locally; (iv) to support members who combine to refuse to serve under a particular governing body or education authority. 2. Supposing such a Fund were established, would you prefer it to be supported by one or more of the following courses? (i) earmarking the balances already accrued (the total balances are nearly £4,000, of which £1,250 is on the General Account, £1,232 in the Legal Fund); (ii) raising the subscription, or a compulsory levy of, perhaps, 2s. 6d.; (iii) voluntary subscriptions from members.

The Herefordshire Strike.

The dispute between the Herefordshire Education Committee and the National Union of Teachers on the subject of a scale of salaries, which led to the closing of about sixty schools in the county on February 1, has now been settled, the Committee having agreed to the terms recommended by the Special Committee. The scale conceded allows of £5 increments, subject to approved service, and the teachers get further increases, over and above the £1,300 granted in December, representing £400 immediately, and ultimately a large but indefinite sum. Allowing for the extraordinary expenditure entailed by the strike, it is believed that the county rate will go up this year by a penny.

Holiday Courses for Instruction in Modern Languages, 1914.

The Board of Education have just published a list of forty-three Holiday Courses in Modern Languages which will be held at different times during the present year, but mostly in the summer months. It should be clearly understood that the inclusion of a course in this list is not to be interpreted as the expression by the Board of any opinion as to its efficiency or otherwise. Eight of the Courses are in German-speaking countries, viz., at Berlin, Freiburg in Breisgau, Greifswald, Jena, Marburg, Salzburg, Lübeck, and Kaiserslautern; three in French Switzerland, at Geneva, Lausanne, and Neuchâtel; four in Spain, of which two are at Madrid, one at Burgos, and one at Santander; one in Italy, at Florence; five in Great Britain, at Edinburgh, Letchworth, Oxford, London, and Ramsgate; and the rest in France, at Besançon, Dijon, Grenoble, Nancy, Boulogne, St. Malo, Bayeux, Bordeaux, Granville, Caen, Havre, Honfleur, Lisieux, Paris, Rouen, St. Servan, St. Valéry-sur-Somme, Tours, Trouville, and Versailles. The table published by the Board of Education gives the date of each Course, the fees, return fares from London, lowest cost of boarding, principal subjects of instruction, address of Local Secretary, and other details of importance to intending students. This paper is no longer distributed gratuitously, and copies (price 2d., by post 2½d.) can be obtained direct from Messrs. Wyman, Fetter Lane, London, E.C., or through any bookseller.

The Carnegie Trust.

The report of the Carnegie Trust shows that the greater part of this sum—to be precise, £534,209—has gone to pay the class fees and other academical expenses of students, and £454,000 has been allocated as grants to Universities and colleges. In spite of this liberal scale of payments the disbursements each year fall considerably below the income, and the trustees have thus been enabled to build up a reserve fund of £180,000, in addition to the 10,000,000 dols. of United States Steel Corporation Five per Cent. Bonds which formed the original endowment of the Trust. As a consequence the annual income is steadily increasing, and last year amounted to more than £110,000. During the twelve academic years in which the scheme has been in operation 13,382 students have been helped by the payment of their class fees. Last year the number was 3,859, and the average amount paid to each student was about £11. 10s.

A Strange Advertisement.

In the *Daily Graphic* of March 6 appeared the following advertisement:—

> YOUNG GENTLEMAN Required in Steamship Office as Junior; must have had some experience and be well educated. *Applications from L.C.C. scholars not entertained;* a knowledge of Shorthand, Typewriting, and Letter Filing would be a recommendation.—Apply, stating age, experience, and salary required, also where educated.

This is the sort of thing caused by the Holmes-Morant circular example. The County Council "scholars," the flower of the public elementary schools, who have gone forward to secondary schools and probably to the University, are barred even for letter-filing. The appearance of this advertisement has caused a good deal of annoyance to those who are concerned to provide further educational facilities for lads with brains. Those who had any concern with the original establishment of higher grade schools know well what it was that set the people to work who engineered the Cockerton judgment. It was the fact that lads from the public elementary schools, when given a chance of further education in the higher grade schools, began to compete successfully for Civil Service appointments. Up to that time these had been the close preserve of those who could afford a grammar or public school education. Though the Cockerton judgment was a set-back for a time, it was one compelling cause of the organization of secondary education which came through the Act of 1902, and the eventual result of such advertisements as the above will be to let the world know that the products of our schools are so able that they have to be artificially handicapped to the advantage of those of a higher social stratum.—*Schoolmaster.*

Society of Education.

On the invitation of the Teachers' Guild, a meeting was held at 74 Gower Street, at 3 o'clock, on Saturday, March 7, for the purpose of considering the formation of a Society of Education. Thirty-one Associations, representing all grades of the Teaching Profession, School Medical Officers, School Managers, and others interested in education, sent representatives. Canon Masterman, President of the Teachers' Guild, from the chair explained that the success of the January Conferences of Educational Associations, which the

Teachers' Guild had initiated, and which had been held during the last two years at the University of London, had led the Council of the Guild to feel the need for some Society of Education to focus Educational opinion and to serve as a Clearing House for Educational Research. The Society that was contemplated, while open to all engaged in educational work, or directly interested in Education, would act as a Learned Society and bring together the various sectional Associations occupied in different departments. To ensure the success of such a Society, it would be necessary that the basis of membership should be wide, and include not only teachers, but also educational administrators. For this purpose, it was thought that it would be better to establish a new society rather than to endeavour to do the work through the existing machinery of the Teachers' Guild. Among the matters to be considered were the terms on which existing Associations might affiliate with the new Society of Education. The draft scheme put forward on behalf of the Guild was criticized in considerable detail by those present, and eventually the meeting was adjourned till May 9, by which date, it was hoped, that it would be possible to obtain the considered opinion of the various Associations.

Accepted Institutions.

The Registration Council are addressing a circular of inquiry to schools of which no information is available. The information asked for is as follows:—

1. Name and address of School or Institution. 2. Name of Principal, or Head Master or Head Mistress. 3. Date of establishment of School or Institution. 4. Number of pupils at the time of this application. 5. Classes of Pupils: number of boys under fourteen years of age, over fourteen; number of girls under fourteen years of age, over fourteen. Number of boarders (if any) included in above. (For Institutions taking only Senior Students.) Number of Adult Students, Men, Women. (6) Give the name of any University or other examining body which has inspected the School or Institution during the past three years. 7. Give the date of such visit of inspection. 8. Give three dates on one of which it will be convenient for a representative of the Council to visit the School or Institution, should the Council so desire. 9. Was any application made for recognition under the Regulations of the former Registration Council? 10. If so, state the result of such application. 11. Give a list of the present staff, distinguishing between whole time and visiting teachers. 12. Any other evidence as to the efficiency of the School may be set out briefly. Declaration: I,....., being Principal (or Head Master or Head Mistress) of this Institution or School at ....., declare that the above information is correct to the best of my knowledge, and I undertake that if the Institution or School is accepted for the purpose of the Registration of Teachers I will not use the fact as an advertisement in any way.

THE WORKERS' EDUCATIONAL ASSOCIATION.

Among the educational projects of the past ten years few have attracted so much attention as the Workers' Educational Association, known to its members as the W.E.A. This body took its rise in the efforts of a small group of trade unionists and co-operators who desired to promote some means whereby University influence and teaching should be made available for members of their own class in the State. Mr. Albert Mansbridge, the enthusiastic secretary to the Association, has lately issued a small volume* dealing with the history of the movement. It is written in a tone of fervent belief in the possibilities and achievements of the W.E.A., such as inevitably challenges a close examination of the reality which may lie behind the author's somewhat rhetorical periods. One finds it difficult to accept, for example, the opening sentence of the preface:—

> The desire for education, as a way of life rather than as a means of livelihood or a mere intellectual exercise, is instinctive among English people and ready to reveal itself, under favourable conditions, at any moment.

A statement of this kind needs a great deal of qualification before it can be held to be even approximately true. One could wish that it were so, for then perhaps the vision which Mr. Mansbridge gives at the close of his concluding chapter might become a reality. He says of the classes conducted by the W.E.A.:—

> They cannot fail to assist the development of the Highway of Education so long desired; a Highway which provides for each man, woman and child the education which he or she ought to have, and which leads directly to a state of society in which people will do the work for which they are best fitted and which they are happiest in doing—when men and women will be do longer the slaves of convention, but, having broken free from hampering tradition and the bonds of their serfdom, will rise to the plane of things which endure; when, captains of their own destiny, whatever their intellectual capacities may be, they will enter with power and spirit upon education as a joyous adventure or splendid exploration, equally content whether the path they take be well trodden and simple, or if alone and on the confines of knowledge it is theirs to unravel secrets and reveal mysteries never before known or understood by men.

The meaning of this is a trifle obscure, but one gathers that the tutorial classes of the W.E.A. are to be a potent force in bringing the millennium. The claim merits a little attention, and despite Mr. Mansbridge's suggestion that "it may perhaps be well if statistics of the classes are little talked about" the ordinary observer feels impelled to discover what has in sober reality been accomplished during the ten years. We find on page 36 a table showing that in the winter of 1908-9 there were eight classes at work, having 237 students. In the winter of 1909-10 the number of classes had grown to thirty-nine and there were 1,117 students. In the Appendix is a further table showing the number of classes during the winter of 1911-12 to be 102, with 2,806 students enrolled. It will be seen that the development of the work has been exceedingly rapid, and it is clear that the classes meet a need. Whether this need is a permanent one time alone will show. It is not improbable that work of the first years will be largely engaged with the older men and women who have had little or no help hitherto. In all such enterprises as the W.E.A. the first efforts have a pent-up stream to work upon. It is well to bear this in mind, and to remember that when the stream of demand is running at its normal level there will inevitably be a falling away from the brave show of the early days.

The machinery of the W.E.A. may be described in a few sentences. It is University Extension on a new model and with a different purpose. Each of the Universities has a Joint Committee, consisting of members of the University staff and of representatives of working class organizations, Trade Unions, Co-operative Societies, and the like. The work of the Joint Committee is to consider the demand for tutorial classes in its area, and to meet it as far as possible. The demand is stimulated by addresses to meetings of working men and women, and by the formation of Local Branches of the W.E.A., each Branch having its own organization. When a Branch finds it possible to start a class it asks the Joint Committee to appoint a tutor. All tutors must be approved by the Joint Committee, and the list given by Mr. Mansbridge shows that the work has attracted some of the ablest of the younger generation of University lecturers.

Financial support has come from various sources. The Board of Education now makes a grant to the extent of £30 a session for each class, under certain conditions as to attendance and work. The Universities have also contributed, and the local branches have raised funds from private donors. In many districts the Local Education Authority also makes a grant. The pupils pay a class fee amounting usually to about two shillings a session. In the expenditure the heaviest item is the payment of tutors, for it has been wisely determined that those who conduct tutorial classes shall receive proper remuneration. Thus an Oxford tutor is paid at the rate of £80 per session per class, and at the other Universities the customary rate is £50. For this sum the tutor has forty-eight hours of class-work and also the marking of essays, together with a varying amount of correspondence and private tuition of individual members

* "University Tutorial Classes." By Albert Mansbridge. (2s. 6d. net. Longmans.)

GUY'S HOSPITAL MEDICAL SCHOOL.

The Hospital, which is situated two minutes' walk from London Bridge, contains 617 Beds.

The **MEDICAL SCHOOL BUILDINGS** have all been erected or rebuilt since 1904; the Department of Anatomy in 1904, of Biology in 1905, of Physiology in 1910, of Chemistry in 1910, of Physics in 1910, and of Pathology in 1912. The Wills Library was presented in 1903, and the Gordon Museum in 1905.

The **STUDENTS' CLUB and RESIDENTIAL COLLEGE** were erected in 1890 at a cost of £21,000. The Club contains reading, dining, and smoking rooms, while the College affords accommodation for about 60 Students, who may be summoned to the wards at any hour of the day or night.

Adjoining the Club are the Pavy Gymnasium, a covered Swimming Bath, and a squash Racquet Court. The Athletic Ground, of nine acres, is situated at Honor Oak Park, distance about 15 minutes by train.

A PRELIMINARY SCIENCE COURSE

for the first examination for a Medical Degree or Diploma (Subjects: Chemistry, Physics, and Biology) commences May and October. Fee: £16. 16*s*. (This fee is returned to the Student upon entry as a full Student.)

Entrance Fee for full Students: 20 Guineas.

Annual Composition Fee for full Students: 30 Guineas per annum.

Annual charge for Materials: 5 Guineas.

The payment of the Entrance Fee and the Annual Composition Fee will entitle, during the twelve months following the date on which each Annual Fee becomes due, a Student to attend all Lectures, Demonstrations, and other instruction provided by the School for Students of his standing (with the exception of such courses as may from time to time be specifically excluded), to compete for prizes, and, if selected, to hold appointments in the Hospital.

ENTRANCE SCHOLARSHIPS IN ARTS AND SCIENCE to the value of £380 are awarded annually in September.

For further particulars, and permission to be conducted over the School Buildings, applications should be made to

THE DEAN OF GUY'S HOSPITAL.

of his class. It will be seen that the fee, while adequate, is by no means extravagant, especially if one reckons the time spent in travelling to the class. The actual cost of instruction per pupil is worth noting, since it is curiously out of proportion to the circumstances of his ordinary life. Thus in a class of twenty-two pupils where the tutor's fee is £50, and the rent of a room and other small expenses bring the total expenditure on the class up to £54 a year, it will be found that each meeting of the class represents a cost per pupil of a little over two shillings. One evening's instruction thus represents to some men the equivalent of half-a-day's work in the factory.

The tutorial class is the distinctive feature of the W.E.A., the true focus of all its effort and probably the only valid reason for its existence. Such a class is formed of men and women who undertake to attend once a week during the winter months for a period of three years, promising to allow nothing to keep them away save illness or overtime, and agreeing also to write essays to the number of twelve each winter. This is no slight undertaking for men and women whose hours of labour may begin at 6 a.m., and whose home circumstances are not generally favourable to quiet study. The meeting of a class lasts for two hours, this period being divided about equally between exposition by the lecturer and discussion by the students.

The choice of subject is made by the class, subject to the approval of the local Branch and of the Joint Committee. Usually it was found in the early days that lectures on Economics and Industrial History were most in demand, but there is now a very slight inclination towards literature and philosophy.

Of the 102 classes which were running during 1911-12 over three-fourths were working at Economic Theory or Economic History, while two only dealt with English Literature and one with Welsh Literature.

This preference for economics is due largely to the fact that the classes are attended by working men who have "advanced" ideas in regard to social adjustment. This presents a problem of some difficulty to a tutor who is academic in outlook. On one occasion within the present writer's knowledge it was suggested that the working-men members of the Joint Committee should visit the classes in Economics in order to discover whether the tutor's doctrine suited their views. This naive attempt to limit the teacher's freedom was of course promptly suppressed, but there can be no doubt that a tutor who feels little sympathy with socialistic opinion will be heckled severely by his pupils. This is merely a sympton of the need which exists for a better understanding of the true meaning of education. The organization of the W.E.A. is loose, and the various branches have a large measure of autonomy. Hence it is possible for things to be done in one district which would be generally disapproved if the Association could express itself as a body. An example is to be found in the action of the Leeds Branch, which has recently demanded the resignation of Dr. Michael Sadler, its President, on the ground that his attitude in relation to a municipal strike in Leeds was contrary to the objects of the Association. This drastic treatment of the Vice-Chancellor of Leeds University is not likely to further the progress of the W.E.A., and it serves as a striking commentary on the words of Mr. Mansbridge, who says of the Association:—"It is obvious that, being an educational movement, it is both non-political and unsectarian" (page 4).

The truth is that the W.E.A. is not purely an educational movement. It is rapidly becoming a political movement, and is thereby sealing its own fate. Unless those who are responsible for its welfare can discover some method of bringing it back to lines which are genuinely educational we shall presently have to deplore the failure of yet another attempt to foster a zeal for learning among the men and women of our workshops and factories.

THE COLLEGE OF PRECEPTORS

PROFESSIONAL PRELIMINARY EXAMINATION.—MARCH, 1914.

PASS LIST.

The Supplementary Examination by the College of Preceptors was held on the 10th, 11th, and 12th of March in London and at fifteen other local centres — viz., Aberdeen, Birmingham, Blackburn, Bristol, Cardiff, Dundee, Edinburgh, Glasgow, Inverness, Leeds, Liverpool, Manchester, Newcastle-on-Tyne, Nottingham, Taunton. The following candidates obtained Certificates:—

SENIOR.

Pass Division.

Adderley, B. J.
Beaumont, H. E.
Gould, Miss F. M.
Murray, H. S.
Murtha, R.
Rees, Miss E. M.
Vaughan-Russell, J. R. F. *f.ge.*

JUNIOR.

Honours Division.

Allen, A. G. *e.g.a.f.*
Beard, F. G. *ma.*
Collyns, P. C. *f.*
Davy, M. *e.a.f.*
Gaskill, D. K. *e.g.l.gr.*
Haines, O. C. M. *f.*
Heape, J. S. *f.*
Jauch, F. J. *a.ge.*
Pascoe, C. *f.*
Rutter, D. C. *e.f.*
Ward, H. R. *f.*
Winn, T. L.
Wright, W. O. *a.al.gm.f.lt.ch.*

Pass Division.

Abercrombie, A. McK. *a.al.*
Ackers, R.
Allen, J. *f.*
Almond, P.
Anderson, C. S.
Andrews, L. A.
Ashley, M.
Avis, B.
Ayres, W. J. *a.*
Barbour-James, J. W. A.
Barron, T.
Barton, A. E. *a.*
Barton, M. K. K.
Barton-Smith, A. *e.a.lt.ch.*
Beaumont, W. *e.*
Benson, C. A.
Best, G.
Blain, I.
Blankley, G. W.
Bleakley, E.
Brazao, E.
Briscoe, C. W. H.
Brooks-Hill, P.
Buchanan, A.
Bunnell, W. G. *a.f.*
Bustard, Miss M. *f.*
Butterfield, A.
Cairns, R.
Caldwell, H. E. *a.*
Charles, G.
Clarke, F. M.
Cockell, D. H.
Cofman, V. *a.ch.*
Corkhill, E. C.
Croke, A. E.
Currie, J. G. D.
Davidson, S. W. *a.*
Dickson, E.
Dyson, C. H.
Egan, T. C.
Emery, F. B.
Finch, H. P. M. *f.*
Finch, L. J. *e.*
Fuszard, C. B.
Garstang, W.
Gould, L. C. F. *f.*
Greensted, R. E.
Grice, J. B. G.
Griffith, E. F. *h.*
Grosvenor, H. O. W.
Hakim, L. S.
Haslegrave, C. P.
Hayward, R. F. J.
Hendry, A. B.
Hood, J.
Hooley, A. W.
Hooper, K.
Jefferies, H. A. *f.*
Jona, A. H. *f.*
Jones, G. G.
Jones, R. J.
Jutton, A. W.
Kendall, J.
Keys, S.
Khalifa, M. A. el R.
La Mothe, F. H.
Lee, F.
Lee, P. M.
Lokrantz, S. R.
Loughran, J. J. *lt.*
Lowden, R. S.
Lyon, L.
Macleod, J. W.
Mahdy, M. S.
Main, A. C. *a.f.*
Maingot, E. L.
Mars, L. J. *f.*
Masters, A. D.
McDougall, A. C.
Mein, Miss E. M. *e.a.f.*
Melland, F. B.
Morgan, J. D.
Mort, T. C.
Neville, G.
Nicholas, J. E.
O'Dell, J. B.
Page, A. D.
Pallett, E. R.
Parsonage, R. P.
Paterson, J.
Peet, J. E. G.
Phillips, E. B.
Phillips, W. G. *f.*
Pippett, E. E. S. *a.*
Powell, A. E.
Ralling, K. B.
Ray, A. D.
Reason, E. L. J. *gm.*
Rees, D. J.
Reeves, G. K.
Reid, A. M. *al.gm.l.gr.*
Siddiqui, B. A.
Smallwood, C. L.
Smith, F. J.
Smorfitt, F. A. *al.*
Smorfitt, W. H.
Smyly, G. E.
Sommerville, W.
Spiro, I.
Squire, F. G.
Staddon, C. L.
Starkey, H. S.
Stephens, E. G.
Stevens, E. D.
Stitt, D. D.
Stockdale, W. H.
Stone, A. B. A. *e.f.*
Storey, Miss N. P. *gm.*
Summers, M. H.
Sunderland, V. L.
Taylor, C.
Taylor, J. G.
Theed, T. E.
Thomas, R. S.
Thomas, T. B.
Tran, R. A.
Unger, K. R.
Varley, E.
Wade, Miss W. C. *e.*
Wainstein, A. I.
Warren, J. W. E.
Waterhouse, E.
Waters, H.
Way, R. H.
Whiteside, W. *a.*
Wilson, D. S. *ge.*
Wolfendale, W. A.
Woods, M.

N.B.—The small italic letters denote that the Candidate to whose name they are attached was distinguished in the following subjects respectively:—

a. = Arithmetic.
al. = Algebra.
ch. = Chemistry.
e. = English.
f. = French.
g. = Geography.
ge. = German.
gm. = Geometry.
gr. = Greek.
h. = History.
l. = Latin.
lt. = Light and Heat.
ma. = Magnetism and Electricity.

THE COLLEGE OF PRECEPTORS.

MEETING OF THE COUNCIL.

A MEETING of the Council was held at the College of Preceptors, Bloomsbury Square, W.C., on February 28. Present: Sir Philip Magnus, President, in the chair; Prof. J. Adams, Dr. G. Armitage-Smith, Mr. Bain, Mr. Bayley, Rev. J. O. Bevan, Rev. J. B. Blomfield, Mr. Brown, Miss Dawes, Mrs. Felkin, Mr. Hawe, Mr. Holland, Miss Jebb, Rev. R. Lee, Mr. Longsdon, Mr. Morgan, Mr. Pendlebury, Miss Punnett, Mr. Rawlinson, Mr. Rushbrooke, Mr. Somerville, Mr. Starbuck, Mr. Storr, Rev. Canon Swallow, Rev. J. Twentyman, Mr. Vincent, Mr. White, and Mr. Wilson.

The Secretary reported that the number of entries for the March Professional Preliminary Examination was 550.

Diplomas were granted to the following candidates, who had satisfied the prescribed conditions:—*Licentiateship:* Herbert William Jones. *Associateship:* Marguerite Bennell.

The Deau and Prof. Adams were appointed to represent the College at a meeting to be held at the Teachers' Guild on March 7 for the preliminary discussion of a proposal to form a new educational association to be called the "Society of Education."

On the recommendation of the Finance Committee it was resolved (*a*) that an additional sum be placed at the disposal of *The Educational Times* Committee for the payment of contributors to *The Educational Times*; (*b*) that of the surplus shown in the Income and Expenditure Account for the year ended December 24, 1913, a sum of £500 be transferred to the Reserve Fund; (*c*) that a grant of £5 be made from the College Benevolent Fund to the widow of a former member of the College.

On the recommendation of the Education Committee it was resolved that the conditions of registration prescribed by the Teachers' Registration Council be approved by the Council of the College so far as they are published.

Dr. Sibly and Mr. Wagstaff were re-elected members of the Council.

The following persous were elected Members of the College:—

Mr. H. Dowse, L.C.P., 7 Lax Terrace, Stockton-on-Tees.
Miss M. G. Frodsham, B.A. Lond., 16 Kingdon Road, West Hampstead, N.W.
Miss W. B. Jenner, Sunnyland, Henley-on-Thames.
Rev. J. F. McCourt, Salesian School, Battersea, S.W.
Miss L. Pedley, A.C.P., The Hiatt Ladies' College, Wellington, Salop.
Mr. C. L. Rotherham, Herne Bay College, Kent.

The followiug books had beeu presented to the Library since the last meeting of the Council:—

By A. & C. BLACK.—Hoskyn's More Pictures of British History; Kirkman's Soirées chez les Pascal; Lyde's School Geography of the World; White's First Book of Experimental Science for Girls.

By BLACKIE & SON.—Claxton's Leather and Bootmaking, and In the Potteries; Irving's Companions of Columbus; Treves's Bamboula.

By HACHETTE & CO.—Weiss's Ten Fairy Tales from Andersen.

By HEFFER & SONS.—Brewster and Wagstaff's School Statics; Foakes-Jackson's Biblical History for Junior Forms (Old Testament), and Biblical History for Schools (New Testament); Freeman and Jobling's Examples in Physics; von Glehn, Chouville and Wells's Cours Français du Lycée Perse (I).

By MACMILLAN & CO.—Mair's Exercises in Mathematics; Siepmann's Freytag's Die Erhebung Preussens gegen Napoleon im Jahre 1813, and Word- and Phrase-book for the same; Usherwood and Trimble's Practical Mathematics for Technical Students, Part I.

By the OXFORD UNIVERSITY PRESS.—Carter's Petit Recueil de Chants Français; David's First Steps in Composition; Jones's Selected English Speeches from Burke to Gladstone; Walker's Selected English Short Stories (Nineteenth Century); Wetherill's The World and its Discovery; Wilson's Dietrich von Bern.

By the UNIVERSITY TUTORIAL PRESS.—Collins's Johnson's Life of Dryden, and Macaulay's Essay on Clive; London Matriculation Directory, January, 1914; The Educational Review, 1913; The University Correspondent, 1913.

By the GENERAL MEDICAL COUNCIL.—The Medical Register, 1914; the Dentist's Register, 1914; Minutes of the General Medical Council, 1913, and Index to Minutes, 1903–1913.

PRACTICAL EXAMINATION FOR CERTIFICATES OF ABILITY TO TEACH.

THE following is a list of the successful candidates at the Examination held in February 1914:—

Class I.

Boulton, Mrs. H. M. Chapman, F. B
Thomasson, J.

Class II.

Green, B. C. Stradling, Miss E. M.
Jones, B. Walker, Miss A.
Jones, Miss M.

THE TEACHING OF ENGLISH.*

By the Rev. A. A. DAVID, D.D., Head Master of Rugby School.

ALTHOUGH the address I am to deliver this evening has by courtesy been called a lecture, I am not here to speak to you with authority on the teaching of English, mainly because I am not confident either of my ability to teach it, or of my power to express how it should be done. I wish rather to put before you a difficulty which you and I have felt equally, to trace that difficulty as far as the sphere of University education, and then to ask you what you think about it. It is a difficulty which has engaged my thoughts a good deal, and more particularly during the last year or two.

At the public schools a considerable number of boys are designated by the masters as "bad at English," and this expression, as you are aware, covers History, Geography, Scripture, English reading, and English composition, and it means, generally speaking, that there is an inability on the part of these boys to read their books in the way masters would like, and secondly that the boys cannot write down what they see, or read about, or think, as they ought. Instead of saying "bad at English" I always ask my colleagues, whenever practicable, to give instead some idea of the nature of the failure and its cause. Let me read at random from some of the reports on this subject which I have had during the past half-term. "No idea of assimilating or criticizing the points of books"; "cannot express himself clearly or logically"; "inability to grasp a line of argument or bring any imagination to bear on his work"; "thinks it meritorious to commit to memory lists of places, or people, or products, or plagues"; "a very rudimentary power of reasoning, and one deduction is just as satisfactory to him as another"; "can amass facts and excels at grammar"; "believes himself bad, but I believe him rather good if he would do a little work now and again"; "does not seem to have had his mind directed to finding out what statements mean"; "appears to be possessed of a dumb devil"; "sadly illiterate: probably never had much imagination or reasoning power, but excellently grounded in Latin."

In the little pamphlet I have here† I have some explanations offered by boys themselves when sent for and asked to explain. Many say, "Of course I am bad, because I have never done any English before." I wish to be careful in making charges against preparatory schools; but, to be honest, I find many cases in which the study of English has not yet been seriously tackled, and my comment here is that this is because the boys have been taught on the supposition that in the process of doing other subjects in which English books are employed they would learn "English" itself. It would not be just, however, to lay the whole blame upon the preparatory schools. Another boy says, "I always read the lessons several times and underline the important things, but 'he' (the master of course is meant) always asks different ones." The main object of this boy's preparation has been to anticipate the test paper questions. The test paper is a most desirable thing, and it really assures a very considerable degree of work. But is the work exactly of the right kind? I think that in public schools the test paper system has been much distorted, and through this we are in part responsible for the state of things we are discussing. To save trouble in correction, questions are set which can easily be answered in a single word, and the boy finds out this plan and works for it. Coherent thought is endangered

* An Address given at the College of Preceptors, March 18, 1914.
† "The Teaching of English in the Middle Forms at Rugby."

by want of any linking up of the points, the master assuming that the memory of salient points implies assimilation of the whole of the subject, whereas many boys learn to provide themselves with such points while ignoring the connecting argument. Many masters, too, are accustomed to test all lessons prepared in exactly the same way.

As to general conclusions, I may say, without being too sweeping, first that many boys cannot read—have never learned how to develop that concentrated kind of consecutive attention which is necessary for the understanding of a book. Secondly, they cannot write—they have not the power, with any sureness of touch, of putting their thoughts on paper. They cannot speak, but they handle language like an unfamiliar tool. And they cannot think. If we could but encourage independent thought and intellectual freshness it would have a vivifying reaction upon the boy's whole life.

These failures can be traced all the way up through education and right out into life, and I ask you, without expecting an answer, can you read a book with the facility with which you would like to read it? A few of us can, I suppose. But I feel, on looking back, that if I had been differently handled I should have been better able to address myself to the reading of a serious book than I can as things are. Can you write a letter, saying just enough and no more, and selecting the phrases which convey precisely the right colour and emphasis? Can you, supposing you have anything to say at all, say exactly what you mean? Clumsiness of expression sometimes leads to distress and misunderstanding. Can you give orders in such a way as to leave no doubt whatever about your intention? And lastly: Can you think straight? This is not quite a fair question, but perhaps a good many national and social troubles are due to this inability. When an assistant master, I was told that all these desirable things came through Latin prose; but certain vague misgivings at the time have developed into the certainty that the statement was for most boys quite untrue.

Of course the ablest learn these things in one way or another. The "medium" boy, who is capable of being pulled over the line in many ways, is the opportunity for our art. "Books," it has been said, "you will never get an English boy to read books: we are not a bookish nation." I think it is because he cannot read books, not because he does not want to. Boys are interested in things which are contained in books; yet in a library they are completely blind, because they do not know where to look for what they want.

We are trying to accomplish our task by means of experiments which are more or less new, if not to all, at any rate in the kind of school with which I have to deal, and to find out whether we can enable a boy to read with consecutive attention. It is suggested that the art of reading a book demands the cultivation of a type, or at any rate a degree, of attention, different from that required for translating from Latin sentence by sentence. The attention is perhaps less acute because spread over a wider field, but it depends upon self-concentration of a special kind. We are trying co-operative reading lessons—reading a fairly easy book fast, and stopping at the end of every period to be quite sure that the whole form is possessed of its gist, before taking the next. I have lately been having oral examinations of these forms, and here is a report of one such examination:—

Boys were taken separately and alone, each reading the same paragraphs, taken in this instance from Macaulay's History, and they were first asked for a summary. Out of twenty-five boys, five had retained absolutely nothing, sixteen remembered parts but in no sequence, and four gave a good précis. Some of those who read best with fluency, correctness, inflexion, and emphasis were the worst in comprehension; and this seems to show that their teaching had been mechanical. Next I asked questions designed to ascertain whether the boys had been trained to grasp the sense of individual words in the sentence.

One department of the study of English is the art of reading aloud. In the first place, to emphasize and to express the meaning of the page as the writer means it sentence by sentence, and to convey to the audience the feelings communicated by the author; and secondly, to appreciate the arrangement of thought, the context, colour, and associations of words, the value of the apt or illuminating phrase; to realize the use as well as the grace of rhythm in English prose; and to acquire a clear and deep insight into the beauties of English poetry. It is essential that young boys should learn passages of prose and poetry by heart, though the practice is far less frequent now than formerly. To conclude this part of my subject, "a lesson spent in reading an English book well suited to the powers of the readers is laying the best foundation for linguists, scientists, and mathematicians to build on, and is giving to boys a key, which some indeed find and learn to use for themselves, but many must have thrust into their hands while they are still inquisitive—a key to King's Treasuries."

And now a word as to the material for the boy's private reading. At present we are deliberately leaving that rather on one side. We hold that given the habit of reading and the power to read, and thereby to acquire an appetite for reading, a boy will naturally find good stuff for himself. His taste will assert itself unconsciously. I much prefer books to magazines. But we let them loose to satisfy their appetite for themselves. Are we right here, do you think? I am not quite sure. At any rate none but the best books are good enough in school, whatever they may choose to read outside.

The matter of assisting them to write is of course a much easier task—to express themselves in describing what they have seen. Leave them free, though of course restraint there must be in its place. There are often mistakes in the setting of subjects for essays, and masters may be found who expect a boy of twelve to address the world at large on a subject quite outside his experience. Of course some boys can write essays quite naturally, and I have with me some rather extraordinary work. Such work cannot possibly be the result of teaching at all. What can be taught is something quite different. I am thinking now of a boy who talks quite well sometimes, and of certain things is really observant, but put a pen in his hand and he seems almost imbecile. Every boy can think and write consecutively about his own experiences. But he must have an audience. He cannot write to the world at large. A boy who addresses his master alone will cramp himself in his writing by considering simply what his master would like him to say, writing neatly and punctuating carefully, and the master may praise the work, which is the greatest pity of all. The boy must express himself for the benefit of others. Let him explain football to a French boy or an American; write a letter in the person of one of Hannibal's soldiers after crossing the Alps; from an officer who has found a copy of North's "Plutarch" in a South African blockhouse; from a farmer complaining of damage, or from a head master in reply.

It appears to be natural to boys to write very long sentences, and I have sometimes thought the length is governed by the time the ink lasts in the pen. It is one of our great aims to get boys to write short sentences, and we select examples of long sentences and set the boys to break them up into short ones.

I come now to the last count of the indictment: the boys cannot speak. I do not know how to learn to speak, much less how to teach the art of speaking. I have asked my friends who are fluent how they have acquired this power, and one replies, "When I want to write my thoughts in a book I first speak about the subject in public." Debating is a help in this direction, but it takes a long time. I hope the art of reading rightly and the art of writing clearly and orderly will bring us to the art of speaking. We are trying a course of oral composition lessons to working men, of which only the day before yesterday I was told "nothing has ever helped us so much before."

The real subject of my address is, how shall we teach the boys to think? I have never known anyone who professed to teach this. Boys do think more than we suppose, and if allowed would think even more. Recently some boys were

talking about a sermon they had just heard, and one said he "liked the sermon because the man talked as though we could think for ourselves." "Why don't they," he added, "do that in the classrooms? But there it is always 'If this is in the book it must be right, and if the other thing is not in the textbook we need not worry about it any more.'" Boys should be led to read full books, big books, *the* books, as T. E. Brown used to call them. I admire the little introductory books which make us desire to read more. But textbooks, unfortunately, are designed to help us through examinations, and have a corrupting influence upon the mind. For the man who is intent upon examinations has no time for reading *the* books, and after a while he loses the power to read them. People whose education is simply punctuated by examinations come to regard all the truth about a subject as being capable of reduction to a series of propositions; whereas the truth is that all generalizations are more or less untrustworthy. The man who thinks clearly and straight about life and the human spirit, which, after all, is the thing we must think about sooner or later, must be prepared to find that there are senses in which every statement is half untrue and half true, or wholly untrue. It is in this sense that "the letter killeth." There is a great danger in a superstitious reverence for phrases. The question I leave with you is, what is the remedy?

THE CHILDREN'S COMMONWEALTH.

MR. CECIL CHAPMAN AS A STORY-TELLER.

By Mrs. Stuart Horner.

At a meeting of the Charity Organization Society, recently held at Denison House, Mr. Cecil Chapman, the Tower Bridge Police Court Magistrate, told a charmed audience a series of stories about the little citizens of a Settlement not long started at Batcombe, in Dorsetshire. This "Little Commonwealth" is worked on lines similar to those of the "George Junior Republic" in the United States, and is an experiment in reformatory work of which the main idea is that self-expression shall take the place of repression, and self-government that of the rules and regulations which obtain in the ordinary reformatory provided for child-criminals. Absolute liberty is accorded to the members of the community; there are no punishments, and only such laws as the citizens elect to impose upon themselves.

Each child is housed and fed, because the growing citizen needs to be cared for and developed on the physical side. Everything beyond this has to be paid for by the individual, and the right to live and to find enjoyment in life is based upon work. The realization of this fact comes home to the citizens after a very short stay in the Commonwealth, and, Mr. Chapman remarked, every worker for the C.O.S. would wish that an equal appreciation of it could be instilled into the grown-up delinquents with whom they have to deal.

Mr. Chapman produced the architect's plans of the Settlement as it is and as it is to be. So far, an old farm building has been utilized, and made into two cottages. Two more cottages have been built, and others are planned. Mr. Chapman said he had been the first magistrate to be asked for suitable occupants, and he had sent down three girls convicted of systematic shoplifting, and so good at it that they were regarded with respect by other members of their profession. He chose these girls because they were intelligent, and difficult to deal with, as he wished to give the experiment a fair trial from every point of view. The youngest began by giving a wrong age (thirteen instead of fifteen); but it was interesting to find that she, the youngest citizen, was the quickest to take up the communal idea and to seize on its underlying principles. She not only adapted herself to them, but helped in carrying them out and explaining them to others. Her efforts were so thoroughly appreciated that when she was fourteen a gold chain and locket were given her by the citizens. She is now "Clerk of the Court," and also in charge of a little shop where clothing, sweets, and other necessaries of life are provided.

Three weeks after the girls were established, five boys were sent down, and there was an end to peace and quietness. There were many rows and troubles, and it became evident that there must be some sort of "boss." The eldest girl was accordingly chosen to rule; but though, said Mr. Chapman, her proceedings were governed by great good sense and fairness, there were difficulties, because the offenders behaved as they had been accustomed to behave. When they were accused they lied; as witnesses, they lied; and each prisoner believed that the Judge was prejudiced against him. The boys were difficult to manage, and the "boss," concluding that girls were not meant to rule boys, retired.

The citizens then elected the naughtiest boy as Judge, because he, at least, would not be prejudiced against offenders. They also discovered that there was no object in deception, and truth-telling came into fashion. But the Judge was so often accused and fined for bad behaviour that he was before long impeached and had to retire. Once more a girl was elected, and after the first three months of office was re-elected, and still holds the post.

"I often attend the sittings of the Court," said Mr. Chapman, "and I am much impressed by the wisdom and common sense of the proceedings, though the sentences are sometimes more severe than I myself should give." At one time the Superintendent's cigarettes were stolen, and the culprit thieved from all the other citizens. When accused he denied his theft, and took to the woods for a week, only appearing at meal-times. But tiring of isolation, and having the feeling of the community against him, he appeared in Court and said he had a confession to make. The Judge gave him leave to confess, whereupon he told all his thefts, many more than had been suspected. He then asked to be punished, but was told there were no punishments. Dissatisfied, he asked to fix his own, and then undertook to do the hardest work for a week without pay. The Court allowed this voluntary punishment. At the end of the week he was the most popular person in the community. The same lad became gradually so ragged and untidy that some of the citizens remonstrated, saying that it was discreditable to the Commonwealth that he should go about in such a condition, and that it was unpleasant to sit by him at meals. His ledger was then produced by the Clerk of the Court, and a large sum was found to be owing by him for fines. Someone suggested that new clothes would have to be provided out of the rates. This he resented as intolerable. The feeling that other citizens should pay for his clothes was so wounding that he worked considerably overtime for a week, and then petitioned the Court to be allowed to pay for them himself when he could. Mr. Chapman saw him some time after, and was struck by his neat, well-groomed appearance. "Oh! don't you know," said a citizen, "he is trying to prevent his clothes wearing out before he can pay for them." This boy has been made Health Officer to the Community.

To prevent further theft of cigarettes, the Superintendent was ordered to lock his up, but, though willing to submit to authority, this he refused to do, locking-up being contrary to the whole principle of the Commonwealth. Non-smoking was then suggested, but to this the boys of sixteen were opposed; finally the age limit was raised to eighteen, and, though a minority grumbled, public feeling was too strong for them, and the rule was enforced—an interesting instance of social tyranny cropping up in virgin soil.

The children can earn 3d. an hour, and can make 12s. or 13s. a week. Boys and girls are paid exactly alike, a fact which the boys resented as unfair, seeing that they did the rougher work. The girls met this by a strike, and the boys realized that making beds, scrubbing, and cooking were necessary to existence, and one sort of work as valuable as another. To this condition of absolute equality of the sexes, Mr. Chapman attributes the orderly and respectful behaviour shown by the boys to the girls. They eat, play, and work together. There appears to be little or no sex-consciousness, and the relation of brother- and sisterliness is maintained.

The citizens choose their own work and make their own play. Dancing has become popular, and public feeling is strongly in favour of "evening dress"—more properly, a change from working clothes to others. These have to be bought or made, and consequently worked for, but are now *de rigueur* in the colony.

The boys and their Superintendent sleep on one side of the house; the girls on the other, with the house mother. As no real home is complete without babies, nine have been imported to be educated on Montessori lines, and the girls compete for the privilege of playing nurse-mother to these citizens of two, three, or four years old.

The great aim of the Commonwealth scheme is to make life not too comfortable, but happy; not easy, but natural; so that when the citizens leave after perhaps three years of self-government and education, they may not find themselves unfit for the outside world. The experiment, so far as it has gone, has succeeded beyond hope, and is a most satisfactory negation of the many prophecies of failure.

Much else Mr. Chapman said, of an interesting and humorous nature, and left his audience eager to know more details of the working of the "Montessori Method" in this new application.

THE LIGHTER SIDE OF PEDAGOGY.

It was Monday morning, and Mary, aged four, was shopping with her mother. With her mind no doubt full of the Sunday Bible reading she suddenly picked up a stone from the road, threw it at the grocer's window, and placidly remarked: "There's Goliath dead."

* * *

The development of personality is the cry at present. Tommy had been very tiresome all day, he was not well, and the nurse showed great patience. At last nurse's patience gave way when Tommy called her a pig. He was told to sit quietly in a chair until he recovered his mental balance. Relating the incident later on to his mother and grandmother in the drawing room, Tommy added: "That was a funny thing to do to a person."

* * *

A School Inspector being the guest of honour at a mayoral banquet endeavoured to amuse his host with school anecdotes and told how on one occasion he had asked a class who had written "Hamlet." Getting no answer, he pressed the question, and at last a timid youngster held up his hand and said: "Please, Sir, I didn't." The Mayor did not seem to be amused, but contented himself with saying: "I expect the little beggar did after all."

* * *

"How do you spell 'ham'"? The small boy was not being caught, says *Pearson's Magazine*. "Which 'am?" he said. "The 'am we eat, or the 'am we are!"

* * *

The *St. James's Gazette* vouches for the following:—"Dear teacher," wrote little Edith's mother, "please excuse Edith for not coming to school yesterday. She fell down in the street and hurt herself. By doing the same you will greatly oblige—Her Mother."

* * *

"You'll talk about having votes at your 'at home' tomorrow, mother, won't you?" appealed the small girl. "We may, dear; but surely it doesn't interest you." "No, mother; but there are always a lot more cakes left when the visitors have been busy talking about votes."—*Manchester Guardian.*

* * *

A boy of nine, remanded at Highgate on a charge of being concerned with another boy, aged eleven, in stealing cheroots from a shop, could not read, write, or spell properly, and was only in Standard I. Asked by the magistrate to spell "Cat," he spelt it "C-a-n-t."

* * *

From a teacher's letter-bag: "Dear Sir, please don't let my boy sit under a window. What with cough mixture and cough lozenges, it's going to cost me and his father as much as if he had a college education."—*University Correspondent.*

* * *

Mr. Pease is doing a good deal of school visiting, and at the moment appears to be much concerned regarding the noises from outside which distract the attention of the children in so many London schools. He was present in a classroom the other day in a school near to a railway line. While one of the girls was reading a train went by. The President of the Board of Education said to the girl "Did you unconsciously raise your voice as the train passed?" The girl's reply was prompt: "If I was unconscious of it," she said, "how can I tell you?" This story, the truth of which is vouched for by a member of the London Education Committee, ought to convince us that the children in the schools are nowadays led to think for themselves.—*Schoolmaster.*

* * *

A good story is being told against himself by Prof. John Adams, of the London Day Training College. It appears that in former days he used to have a class in machine construction and drawing. He set a student a paper on one occasion, and took it home to examine. He went carefully through every item, and found all pretty correct, but there was one semicircle of which he could not fathom the object or meaning. He worried over this after supper, and came to it again and again, struggling with it till three o'clock in the morning! Then he discovered that the puzzling semicircle was simply a hair out of his own moustache that had dropped on the paper. —*Schoolmaster.*

DER ZEIT-GEIST.

With the coming of Spring there's a rush and a fling in the portals adjacent to Paul's,
With a surge and a rush the matutinal crush hath encircled the classical walls;
There's an agonized cry from the Smiths and the Wymans as, panting, they struggle for more,
And the pundits are summoned from sanctums on high to resist with their backs to the door.

For the fiat of Northcliffe is hurtling forth to the dwellers in uttermost climes,
That the children of men are to read for a penny the ultimate signs of the *Times;*
And the glittering trail of our purposeful *Mail,* insidious, indicates soon
Dithyrambics on "soccer," a serial tale, and stop-press editions till noon.

With profoundest respect may we think to expect, dear Editor, also from you
Just a *soupçon* of such of the Carmelite touches as blend with the old and the new;
Will you deftly insert the illusive advert. in the column portentous and bland,
Or establish a bureau for counsel expert on the servants extant in the land?

Is your erudite brow bewrinkled ere now with a leader on dusters and chalk,
Will you give us the photo of baby Antonio out for his afternoon walk,
And, for pity, provide a pictorial guide to that dread mathematical page
Where riot the a's and x's unbridled, where "functions" do horribly rage?

A. C. B.

The Minister of Education, accompanied by Sir A. Selby-Bigge, has been spending a fortnight in Germany studying the continuation schools, manual and technical centres, and higher education institutions. He visited Munich and Berlin.

CURRENT EVENTS.

The Rev. A. G. Cooke, D.D., has been appointed Regius Professor of Hebrew and Canon of Christ Church, Oxford, in succession to the late Prof. Driver.

The Rev. E. W. Clarke, of Loretto School, has been appointed Head Master of the London Orphan School, Watford. He will take up his duties after the summer term, when Dr. Cockrem retires after twenty-eight years' service.

The Prime Minister, Mr. Arthur Acland, and other distinguished persons have joined the Committee formed to make a presentation of his portrait to Mr. W. G. Rushbrooke, who has for twenty-one years been Head Master of St. Olave's School. The portrait is to be painted by Mr. Hugh G. Rivière. Subscriptions may be sent to Mr. T. Kingdom, St. Olave's School, Tower Bridge, S.E.

The next combined examination for fifty-three entrance scholarships and a large number of exhibitions at Pembroke, Caius, Jesus, Christ's, St. John's, and Emmanuel Colleges will begin at Cambridge on December 1.

It is announced that at the Children's Welfare Exhibition (Olympia, April 11-30) there will be demonstrations of a Montessori School.

The Bishop of Southwell will preach at a special service for members of the teaching profession, to be held at St. Paul's Cathedral, London, on Ascension Day, May 21, at 6.30 p.m. No tickets of admission are required.

The Queen paid an informal visit last month to the London Day Training College, and was escorted round the building by the Principal, Prof. Adams. The Queen climbed to the top of the building and enjoyed the view.

The Courses for English Teachers in Tours which were started by the Teachers' Guild are being continued by the Institut d'Etudes Françaises de Touraine.

The University of Wales, Aberystwyth, announces a Summer School in Geography, beginning on August 4.

The second meeting of the Imperial Union of Teachers, inaugurated by the League of the Empire, will be held at the Caxton Hall on July 18.

Mr. Ralph S. Hyams, 28 Victoria Street, S.W., has been appointed Hon. Secretary of the Joint Committee for the Abolition of Half-Time Labour.

The Summer Meeting of the University of Cambridge begins on July 31, with an inaugural lecture by Sir J. J. Thomson.

An Organ Scholarship, value £30 per annum, is announced for competition in June next at Girton College, Cambridge.

Mr. J. H. Badley, speaking at Cambridge on the subject of Co-education, said: "Surprising as it may seem, there are at present no less than two hundred and fifty secondary schools in England which are co-educational in a greater or less degree."

The London University has established a London University Matriculation Centre at Belfast. This is the first time that London University examinations have been held in Ireland. It does not look as if the external student was being crushed out of existence.

For the Montagu Butler Prize for Latin Hexameter Verse at Cambridge, no exercises were sent in.

Among the persons of high academic position who have applied for admission to the Teachers' Register, are Dr. Warren, President of Magdalen College, Oxford; Prof. Gilbert Murray; Prof. J. A. Green; Prof. Walter Rippmann; and the Head Masters of Eton, Repton, and Rugby.

Mr. Spurley Hey has been appointed Director of Education in Manchester, at a salary of £1,000 a year, in succession to the late Mr. C. H. Wyatt.

Lord Haldane will open the new University College at Southampton in June.

The number of entries for the commercial examinations of the Society of Arts, which have just been held, was 37,973, an increase of 2,057 over the number of the previous year.

Speaking at the College of Preceptors last month, Dr. Kimmins referred to a new method of teaching deaf children to articulate clearly. An apparatus has been devised in which flames varying in extent can be produced by the voice. The deaf child observes the teacher, and then experiments until he makes a similar flame by producing his voice. When he has produced the same flame he has acquired the right tone of voice.

An agreement for the lease of premises at 19 and 21 Gower Street, for the new Club of the University of London, has now been signed on behalf of the Committee.

Mr. G. A. Mackenzie, who was born deaf and dumb, has just taken the degree of M.A. at Cambridge.

PRIZE COMPETITION.

Prizes are offered each month for the best replies to the subject set. Competitors may, if they wish, adopt a *nom de guerre*, but the name and address of winners will be published. Competitions should be addressed to the Editor of *The Educational Times*, 6 Claremont Gardens, Surbiton, and should reach him not later than the 15th of the month. As a rule competitions should be quite short, from 100 to 500 words.

The first prize will consist of half a guinea; the second prize of a year's free subscription to *The Educational Times*. It is within the discretion of the Editor to award more than one first prize, or more than one second prize. Cheques are paid on or about the quarter-day following publication.

Subject for April.

The Best Definition of a Howler, with two Descriptive Examples.

Seven Humorous Incidents were received. A prize of 10s. 6d. is awarded to Mr. Alfred Cook, 30 Cleveland Park Crescent, Walthamstow, Essex, whose story is printed below. This competition will be repeated later. Humour is hard to come by, but examples must occur from time to time.

During the absence of the form master, the Head Master himself took charge of the class, and it so happened that H.M.I. called on a visit of inspection.

Knowing the partiality of the Inspector for Practical Mathematics, the Head Master decided to give the boys a lesson on paper-folding, taking as his example the theorem to prove that the area of a triangle is half the area of the rectangle on the same base and having the same altitude.

When the boys had themselves performed the task, he said: "Now boys, who can tell me what we have been doing?" Up went the hands, and the usual irrepressible seemed to be most anxious to answer. The Master noticed this, and in view of past experiences said, "Now, Smith, be careful what you say, but let us hear what you can tell us." "Please sir," said the irrepressible, "I can show you a better card trick than that." Loud laughter greeted this reply, in which both Master and Inspector heartily joined.

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SANE SEX TEACHING.

I.—INTRODUCTORY.

By Eric Pritchard, M.A., M.D.

The Editor of *The Educational Times* has asked me to write a few introductory words to a series of articles on the above subject, which he proposes to publish in the forthcoming numbers of this journal. As I am as deeply interested in the educational aspects of sexual knowledge as I am in its purely hygienic relationship, I have gladly acceded to his request.

I think it quite possible that some of my readers may expect me to open this symposium in a spirit of apology, for the idea of an open and frank discussion of so indelicate a subject as the physiology of sex is still anathema to a large section of the community. Such an attitude, however, appears to me to be quite uncalled for at a time when, in every other civilized country except our own, the whole subject has been discussed in lay circles and in professional circles, in lay papers and in professional papers, until there is practically nothing left to be said about any of its aspects. In America everybody seems to have become so tired of talking and discussing that the Aristotelian method of abstract argumentation is giving place to the more practical method of experimentation. But that is no reason why we in England should not argue and debate this question in a more reasonable spirit.

For my part, I cannot see any fundamental distinction between sex knowledge and any other kind of knowledge, nor can I understand why the methods of acquiring knowledge in one case should be different from the methods of acquiring knowledge in any of the others. If any distinction should be made it should only be in degree, and, as the sexual life of individuals is, in the narrow sense of self-interest as well as in the broad aspect of race interest, more important than any other, a knowledge of the significance of this part of life is surely of a kind with which no one can afford to dispense.

In accordance with the view that I take of matters educational, I regard childhood as a probationary period during

which the developing organism learns how to accommodate itself to the conditions of the environment and how to protect itself from the dangers which assail it on every side. The child must learn how to protect himself from moral as well as from physical dangers, and just as he finds ultimate safety from the dangers of heat and cold, or from infection by the germ of disease by experience and familiarity, so does he become steeled against moral dangers by a knowledge of their consequences and by the development of so-called character.

I regard one who has battled with most of the common dangers of the environment, and has emerged from the fray victorious and immune, as a useful and efficient citizen—not one who has been kept in cotton-wool, and in a disease-free atmosphere of hygienic and moral purity; for such an one there are many dangers and troubles in store.

Childhood is a time during which it is very easy to establish habits of action owing to the plastic and malleable character of the nerve centres which control and co-ordinate physical functions as well as psychological activities or habits of thought. Consequently those individuals who from an early period of life learn how to respond to the events or stimuli of the environment by a line of conduct which may be regarded as favourable, virtuous or moral, soon learn, when similar circumstances recur, how to behave in exactly the same virtuous and moral way by force of habit. A child with a fixed and permanent habit of resisting temptations associated with the instincts of sex is, in the generally accepted sense of the term, to be regarded as virtuous, and as such is in a far safer position than the child who, though perfectly innocent, and, in another sense, virtuous, has never had enemies of this kind to fight, or, if he has had to fight them, has done so unawares and in the dark.

If this belief in the general uses of education is well founded, and more especially if its particular application to the acquisition of knowledge of sexual matters is justifiable, we are surely right to try to discover in what way this knowledge may be best imparted. We are more likely to discover the best way, or, at least, a good way, by study, experimentation, and the weighing of accumulated experience, than we are by allowing children to work out their own salvation not only without assistance, but under the disadvantages of methods of deliberate misguidance and obscurantism, or, what is equally bad, by leaving them to discover these vital truths from ignorant and often vicious companionship.

Although we must admit that teaching is as much an art as a science, and that it is only given to a few favoured individuals to teach really well, that is no reason why we should not do our best to discover the best method of teaching sexual hygiene just in the same way that we are trying to discover the best methods of teaching spelling, music, and foreign languages; for by applying the best methods we shall get the best results from each teacher in accordance with his particular teaching capabilities. It is possible, for instance, that we might derive useful information as to the merits or demerits of the different methods of sexual education now on trial by means of a *questionnaire* circulated among those who have been the subjects of the experiments. The answers, of course, to be forwarded anonymously. In this way we might be able to compare the experiences of the pupils under different régimes of teaching. Such a confessional might give us useful, though not conclusive, evidence of the value of systematic teaching.

But in estimating the value of any particular system or method we must not attach undue importance to a few or even to a considerable number of failures. Failures there will always be under any system. Not necessarily because of the inherent faults in the method, but because a certain proportion of children are always inherently sexually psychopathic or otherwise mentally abnormal.

I fully recognize that there are dangers attaching to premature and precipitate action with respect to the teaching of sex knowledge. Instances have come to my knowledge in which mothers, and indeed fathers, have been so impressed with the urgent need of placing their children in possession of a knowledge of the sexual facts of life, that they have taken upon themselves the duty of enlightenment in these respects, and have done it so badly and injudiciously that the children have become morbidly sex-conscious and sexually psychopathic. This is one of the reasons why I so strongly disapprove of parents taking upon themselves this very difficult duty.

This *pavor sexualis*, which certainly can be engendered even in normal individuals by panic-stricken and injudicious teaching, may not only act as a deterrent to marriage, but it may lead to unfounded suspicions and much unhappiness both during and before wedded life.

For these reasons I think a little calm deliberation and serious discussion on these subjects can only do good; precipitate action before we know a little more can only do harm. We must experiment on a small scale and weigh the results before we attempt to apply any particular method in a large way. It is quite possible that some of these experiments may prove somewhat costly, but great victories have never yet been achieved without great sacrifices. We have thought nothing in the past of sacrificing many thousands of lives in the conquest of land, nor do we now begrudge considerable sacrifices in the conquest of air and water. Surely we must be prepared to make a few sacrifices in the attainment of knowledge which is so essentially bound up with the happiness of each one of us.

In the articles which are to follow I hope we shall gain enlightenment not only with respect to the points raised in this introduction, but also with respect to that which has already been done, and the experiments now in progress or in contemplation for placing sex education on a sane basis.

EVENING CONTINUATION SCHOOLS: A NECESSARY EVIL.

By Dorothy M. Zimmern.

Two things are certain—our present continuation-school system satisfies no one, nor is any one agreed as to what to put in its place. We all know that a child at the age of fourteen has not received sufficient schooling either to take his place as a citizen of a world Empire or as a producer for the world market. Yet under present conditions he is expected to play both these parts, and it is the business of educationists to prepare him for this double sphere.

Our present far-reaching franchise entrusts, if not the Government, at any rate the casting vote in the Government of the country, to that class of the community whose regular schooling ceases at the age of fourteen. Can we then blame them if, in times of election excitement, they do not show that balanced judgment and sane self-control which other men strive to acquire through a period of training twice as long as theirs, while the girls, more rationally perhaps, are denied the responsibility which only some have been fitted to bear?

We are touched even more closely, in times of falling trade, by the sight of a large number of unemployed men who frequently prove also to be unemployable. One of the most valuable results, indeed, of the Unemployed Workmen Act was to reveal the fact that it was young men with no trade who were in distress rather than older men, who might more reasonably have been expected to be beaten in the struggle for existence. At such times the demand for more technical training gains fresh strength, and the great efforts made in that direction,

especially by Germany, fill us with mixed feelings of admiration and fear.

This, then, is our problem: What must we do for the children who now leave our schools at thirteen or fourteen years, in order to enable them to become good citizens and good workmen?

The Trades Union Congress, together with many reformers, has frequently advocated the obvious solution—namely, that of keeping the children longer at school; but the President of the Board of Education, who ought to know, assured it only a week or so ago that public opinion is not yet ready for such a change. Manual workers, it is still thought, must be put to their particular job at an early age, else they will fail to acquire that dexterity which is the secret of their craft, while most parents and employers are anxious to exploit the productive capacity of the children as soon as they are allowed to do so, without further thought of the consequences.

Since, therefore, we are not yet prepared to concede an effective change in the direction of raising the school-leaving age, we must consider how best to combine the wage-earning, which may or may not be educational, with some form of continued training. A brief description of our present system will, perhaps, reveal some of its defects and suggest possible improvements.

At the present time there are some eight thousand centres where some form of continued education is given to young people. The subjects most usually taught are suitable for clerks and mechanicians of different kinds, and include:—Languages with a commercial bias, shorthand and typewriting, &c., on the one hand; building construction, engineering, drawing, &c., on the other are intended to fit the boys for a future career, while domestic economy for home use is especially designed for the girls.

The teachers, though often devoted and zealous, are usually engaged in elementary school work during the day, and cannot therefore bring to their task that freshness which is especially needed to stimulate the students, who also have a day's work behind them. Thus the atmosphere of the school is apt to sink to routine, as tired mind reacts on tired mind.

Another difficulty is found in the premises, which are often the elementary schools. The children, delighted with the importance of their new position as wage earners, are loath to lower their dignity by returning again to the familiar scenes of their former life. The very rooms remind them of the old discipline, which they so eagerly cast behind them, and the associations, which might be thought to attract them to further study, have the opposite effect in the first ebullition of independence. Again, though suitable in many ways, the schools are often without the appliances necessary for more advanced work. Circumstances, which seem small in themselves, often make serious work impossible. For instance a class of stalwart boys and girls, who are expected to confine their growing limbs within benches suited to their younger brothers and sisters, will find it difficult to forget the discomfort of the body and to attend to intellectual pursuits. Again a simple science demonstration may be made impossible owing to sloping desks, which, however satisfactory for writing lessons, cannot be used as laboratory tables. The result of these and other drawbacks are clearly seen, when we come to count up how many of the children make use of the opportunities offered.

It is only the exceptional schools where eighty to a hundred and twenty hours work is done during the year. The new system of Grouped Courses, whereby a child is encouraged to learn general subjects alongside of bread-and-butter ones, is but gradually gaining ground. Fifty-eight hours in the year is the average attendance in London and other large towns; in smaller towns the students give less time still to the work. The Board of Education makes grants even where only fourteen hours work is done during the year, yet nearly one-fifth of the boys and girls who drop into the night schools at some time during the year never come as often as fourteen times, and these casual students have a very demoralizing effect on the regular work, and, moreover, would seem to be an index of a more widespread apathy and lack of earnestness on the part of many who just manage to earn the grant by means of a slightly higher attendance.

In rural districts the difficulties are naturally greater than in town. Distances are great. Roads are muddy and dark. The school is often the only building available, and yet also the very one which possesses least attraction for the children. Consequently there are many places which have no opportunities for further education at all, and others where classes held one winter are not carried on in the next, so that there can be no question of continuous training or real education.

Whether these objections are consciously present in the minds of would-be students or not, it is clear that they affect their actions and deter the majority from making any attempt to improve themselves at all. Both Edinburgh and London have recently made strenuous efforts to give their growing boys and girls further educational opportunities; the curricula have been revised to meet their needs, some whole-time teachers have been appointed, every inducement has been offered to attract them.

Yet in Edinburgh only 30 per cent. of the possible children attend, and in London, though the scheme is perhaps too young as yet to judge finally, considerable anxiety is felt as to its success.

Throughout the country as a whole, the evening schools frankly fail to reach the adolescent population in sufficient numbers at all. The Board of Education with heavy heart makes the calculation that only 13 per cent. of the boys and girls under seventeen, who are not receiving education in other ways, come to evening schools at all; the rest start on their career as citizens and workmen with that intellectual and moral equipment which they have been able to imbibe up to the age of fourteen.

What then is the matter? The answer seems clear. No young things full of high spirits and a desire for enjoyment find it natural to return to school benches after a hard day's work. In the course of their employment, some of them, as learners and apprentices, are subject all day long to control and correction, others, as vanboys and messengers, get into the ways of irregular hours and a roving life. In either case the desire to follow their own sweet will in their free time is overwhelmingly strong, and the thought of classes and discipline extremely repugnant.

Again, physical strength hardly suffices for evening as well as day work. The Consultative Committee of the Board of Education, which in 1909 made an exhaustive Inquiry and Report on Attendance, compulsory or otherwise, at Continuation Schools, did not express any definite opinion, as their witnesses were very much divided on this subject. Some of them thought that the children were perfectly well able to attend classes in the evening, provided that they were not kept later than 9 o'clock in the evening, when work began at 6 o'clock on the following morning. Others felt that a day's work was enough to get into a day, and that boys and girls should be left some free time to develop on their own lines. Further study since then on the nature of youth, and still more on that of fatigue, has confirmed this latter view. Tiredness is becoming more and more recognized as the disease of the city, which makes town-dwellers prone to acquire illnesses as well as vices, while healthy cheerfulness is realized to be the best antidote to most ills. It seems, therefore, unwise as well as tyrannical to force the growing generation to do work and to receive instruction which, though it may give them useful information, will deprive them of that buoyancy of spirit which they will need so sorely when hard times come.

At the present time, too, the curriculum and atmosphere of our evening schools is such as to attract mainly that robust and strenuous portion of our poorer population which is determined to get on. Ambition is a powerful spur, and one which educationists do well to make use of for their own ends. But care must be used in its application, lest other equally valuable qualities be stifled. Our present continuation schools have in view too much the production of good workmen capable of securing well-paid jobs, and are

apt to lose sight of the necessity of making good citizens, able to contribute their quota to the fund of national well-being.

With the growth of specialization and highly technical skill the fact is sometimes obscured that good citizens are as valuable as good workmen, and indeed that it is impossible to produce the one apart from the other. It requires as careful training nowadays to become a skilled burglar as any other form of craftsman. We need to develop moral as well as intellectual qualities, and to fire the imagination not only at picture palaces but also at technical institutes.

To sum up, the education of boys and girls over, as well as under, fourteen should be carried on in the day-time and not relegated to the evening, when nature calls for relaxation and rest, and should be such as to prepare them for life as a whole, in which duty to the individual, the family, and the nation are inextricably blended.

THE RELATIONS OF SCIENCE AND INDUSTRY.*

THE WORK OF THE IMPERIAL COLLEGE OF SCIENCE AND TECHNOLOGY.

By Sir Alfred Keogh, K.C.B., LL.D., M.D.

It must be my first duty to thank you for the invitation which enables me to address you to-day. The opportunity which the occasion affords me of calling your attention to the relation which, in my opinion, the Imperial College should bear to the industries is one which I would not willingly miss. There never has been a time more full of hope for higher scientific education, in its practical aspects, than the present. We are promised a comprehensive scheme of national education in which we may anticipate that the interests of applied science will not be forgotten, and a Royal Commission has lately recommended the formation of a special Faculty devoted to the applications of science, and its inclusion in what, I do not doubt, will become the greatest University in the world. There are indications, also, that the importance of education in science, as a factor in industrial prosperity, is being recognized in the academic world. Whatever the near future may produce in the way of increased efficiency will depend, in my opinion, upon the establishment of definite relations between the leaders of the industrial world and the Imperial College of Science and Technology. It is not enough that the Universities should become converts to the new ideas. It is essential that the industries should become intimately associated with them.

I am convinced that the academies alone cannot provide for all the requirements of the future, and that, unless the industries become part of the machinery of higher scientific education, neither the Government nor the Universities will accomplish, with a full measure of success, the ends we have, or ought to have, in view.

It may be well if I here remind you of some past events, because they represent an upward movement full of encouragement. It was not until the year 1852 that educated opinion had so far advanced as to impress upon the Government of the day that scientific education had become a matter of such moment to the national needs as to make it a subject of State consideration. The Exhibition of 1851 had just closed, and the impression which had been produced was not destined to fade completely. For the first time in its history Applied Science obtained a mention in the speech from the Throne in 1852.† The ultimate effect was the establishment of a Science School in London, the main object of which was to be the training of teachers for those minor institutions which, it was intended, should be set up throughout the country. In this school was included the College of Chemistry already, under private effort, a flourishing institution. Although the missionary effort of the Government School in London did not cease in the seven years of work that followed 1853, progress was slow. During this time there went out from South Kensington a sufficient band of teachers of science to establish in the provinces nine centres of instruction with 500 students. But we read that, in the ensuing twenty years, 1,455 schools had been established with 57,000 students. This is briefly the history of scientific education for the masses up to the year 1880, in which Owen's College played so conspicuous a part. I say "for the masses," because the definite intention of the State in aiding the formation of the technical schools was to afford assistance to the industrial classes. But, incidentally, the school in London was enabled to do much for what in those years was regarded as high applied science. Thus, out of the movement of 1852 the now numerous technical schools developed and, from some of these, the English Provincial Universities have arisen.

At the end of the period which we have considered (1880), we find established at South Kensington the famous Normal Schools of Science and the Royal School of Mines, the result of the gradual progress of the scientific movement, by stages which the time at my disposal will not permit me to describe. I should not omit to mention that while, up to this period, the main efforts of the pioneers were directed towards the establishment, the organization, and administration of scientific schools, from now onward new methods of scientific teaching began to develop.

The influence of Huxley here becomes prominent, and henceforward we find Kensington distinguished for its practical training in what we may call well equipped laboratories. For the second time in its history the Government School of Science was to point the way. The long connexion of Huxley with the South Kensington School ensured the continuance of the system of practical laboratory training for which it has been renowned.

The impression produced upon practical men engaged in the world's work was great. The spirit of progress had not been witnessed in the academy for many a day. Science had found it difficult to effect a lodgment in the Universities, and the applications of science had hitherto met with little sympathy in educational institutions of any kind. And so fresh demands upon Kensington continued to be made throughout this period. For instance, at the request of the Admiralty, a great School of Naval Architecture and Marine Engineering was formed, and when this new experiment in education in applied science had been successfully accomplished, the school was handed over as a going concern, to be ever since an integral part of the Royal Naval College, Greenwich. In speaking of this branch of work, in a memorandum to the Lord President of the Council furnished by the President and Council of the Institution of Naval Architects, we find it stated that the success of the School of Naval Architecture was phenomenal, and that the great majority of the rising men in the profession in England and in foreign countries had been educated there. Similarly, a Department of Agriculture was established at an early period, and was retained until the needs of the country had been sufficiently met by the foundation of agricultural colleges.

All that I have endeavoured to relate briefly led up to the institutions known to you as the Royal College of Science and the Royal School of Mines, to the establishment of the Science Museum, and to the recognition, by the country generally, of Kensington as a scientific centre. Meanwhile the Corporation and many of the companies of the City of London were doing a great work for technological education, and when the City and Guilds of London resolved to establish a college for the highest training in applied science, they placed it at South Kensington, thus identifying themselves with the spirit of the times and with the locality. The development of this great movement depended largely for a period of fifty years on the enterprise of the Commissioners of the Great Exhibition of 1851. But the efforts to set up scientific education in the country, though highly successful, had not in the end reached the highest level of efficiency and had not yet been established on the highest plane. Even in 1906 it was possible for a responsible body to say that "the principal deficiency, whether the resources and needs of this country are viewed by them-

* A paper read at the Conference of Employers of Labour at the National Gas Congress and Exhibition on Tuesday, October 28, 1913.

† "The advancement of . . . practical science will be readily recognized by you as worthy of the attention of a great and enlightened nation."

selves, or whether the rapid strides made by other countries are considered with them, appear to lie in the sphere of the highest technological education."

It was different, for example, in Germany, in Switzerland, and in the United States. In all these countries the most strenuous efforts had been made for higher scientific education, and many institutions for instruction in the applications of science were set up which have since become famous. It is correct to attribute the rapid advances towards the highest planes of specialization and research accomplished by the Germans to their efficient system of secondary education, but it would be erroneous to assume that our slowness to appreciate the importance of foreign efforts was the result of our educational deficiencies. South Kensington might have been called upon at any time to make the experiment, even if the Universities held back.

It was not until 1906 that the necessity for the establishment of a College of the foreign type was recognized and steps to establish it were undertaken. It was natural that the eyes of those intereted in this matter should once again be turned to South Kensington. The happy combination of the State, the Commissioners of the Exhibition of 1851, and the City of London, which had accomplished so much pioneer work in the past, might be regarded as equal to the new requirements. An examination of the conditions necessary for the successful fulfilment of such a scheme as the establishment of a College for high science and Technology displayed the necessity of a fourth party in the new design. In 1904, a Committee was formed to consider this great national project, a Committee which presented a report in 1906. Their recommendations led to the establishment of the Imperial College. The conclusions at which they arrived at were *inter alia*; (1) that the position of this country makes further provision for advanced technological education necessary; (2) that the students by whose advanced technological education the nation would profit are not actually obtaining it to the extent which is desirable; (3) that the opportunities for research in our technological institutions are inadequate to the industrial needs of the Empire; (4) that, in any institution in which the highest technological education is given, the equipment should be adequate for the purpose and the Staff should include at the head of the several specialized branches of the work men of the first rank in the profession.

These statements attracted attention; they led to a new effort in the cause of scientific efficiency. The three separate colleges at Kensington were combined for purposes of higher education, to form one with a common governing body. The place of Government control was taken by the industrial and scientific societies, Government presented the necessary buildings, the 1851 Exhibition Commissioners presented their available lands at South Kensington, and the City and Guilds of London, as well as the London County Council, co-operated. Munificent donations which have in all amounted to nearly half a million were received, and to-day Government and the London County Council give annual grants of £43,000.

So far the accomplishment of the project marked a decided advance in scientific education. There remained for consideration the methods which should be adopted to give effect to the intentions of the original committee. Let it suffice if I say that, after careful consideration by four committees representative of all that was best in the scientific and industrial world, the governing body was placed in possession of schemes of education and propositions for the encouragement of research which they are now carrying out. Many of the proposals rendered necessary a complete re-equipment of the laboratories, large additions to the staff, and the construction of new buildings.

The purpose held in view has been the training of young men for professions connected with the industries, and my conception of what this necessarily involves I shall presently explain. What is of importance now is to note that it was the introduction of the fourth party which gave to South Kensington the new complexion which it possesses. The State, the 1851 Commissioners, and the City of London were, as essential elements in scientific education, reinforced by the Institution of Civil Engineers, the Institution of Mechanical Engineers, the Institution of Electrical Engineers, the Iron and Steel Institute, the Institution of Naval Architects, the Society of Chemical Industry, the Federated Institution of Mining Engineers, and the Institution of Mining and Metallurgy, who were all called upon to take part in guiding to a successful end the objects of the undertaking. As if this were not enough, the Governors were later on urged by their own committees to make the union of the college with the industries closer by setting up such Advisory Boards as might bring them into direct connexion with special industries, and by the appointment of lecturers, or of associated professors, from amongst those actually engaged in industrial work and eminent in their departments of applied science. I venture to think that all this represents an earnestness as great as that which has led to results so good in Germany, in the United States, and Switzerland. If it means anything, it means an invitation to the industries to join the College.

This, then, is the Imperial College. The story as I have told it you is the history of South Kensington in relation to the development of scientific education in England. I think that the record is an honourable one. It was the natural rôle of Kensington to be in the front of the new movement. Its old rôles had been fulfilled.

Our existing national system of scientific education (if I may speak of a national system at all) affords ample opportunity for the attainment of scientific knowledge up to a certain point. That point is, in University language, the first degree standard. Everyone who wishes, and who possesses the necessary grit, can obtain a degree in Science. The educational ladder, of which Huxley loved to speak, has been constructed, and he who wills can mount its topmost rungs. But, however flattering to our national vanity the contemplation of this ladder may be, a practical acquaintance with it very soon convinces one that in truth he who climbs it has not attained a very elevated position. He has not attained that position which fits him to enter on the practical applications of knowledge at the stage which the industries require. The scathing criticisms which industrial experts have levelled at the academies will, if we examine them, convince us that our costly system of education is sacrificing the best students in the interest of a whole host of mediocrities. We have been in the habit of providing an undergraduate education for the many, but we take little care to supplement the training of the few who are really worth higher education. I am to-day concerned only with what I may call, for purposes of identification, post-graduate scientific education—that education in which you as industrial experts are specifically interested, and which it is the duty of the Imperial College to supply to selected men.

The preliminary education of a young man of Science having been completed, we turn our attention to his further training, with the view of making good those deficiencies which the report of the Committee assures us exist. It is here I think that opportunities have been neglected, and, if I may be allowed to say so now, the responsibility for the general neglect, or at least, the responsibility for the correction of existing defects, lies at the doors of the industries. Ever since I become acquainted with the problem of higher training in the applications of science, whether deriving my knowledge from advanced students, from professors, or from masters of industry, I have been struck by the fact that it is the absence of a definite organic connexion between the factory and the school which is responsible for the existing shortcomings in higher education. The most elementary acquaintance with the subject makes it plain that the factories must themselves play a part. It is this view which, as I take it, the advisers of the Governing Body of the Imperial College wished to emphasize when they made practical men of affairs responsible for the educational methods of the Imperial College. There is a period of specialization in academic training when the specialist becomes concerned with education and, provided the basis of the sciences are laid during a series of years without any regard to specialization, it is at this period that the expert in applied science must be called upon to afford his aid in the educational process, if your own criticisms are to be met. The efforts of the Imperial College have therefore been directed towards the establishment of that direct organic connexion with the industries which I believe to be essential. It would be worse than useless to attempt to establish in the Imperial College any imitation of large-scale factory processes. It is in the factories themselves that advanced students must receive that education in applied science whether by demon-

stration or research, for which I appeal, and receive it under an organized system. However useful "visits" of academic classes to factories may be, they are wholly insufficient and, in my opinion, should be replaced by the attachment for fixed periods of small classes of advanced students and of research Fellows to the laboratories of the industries.

I am speaking now with some experience of the method, and I am not putting forward a crude theoretical design. I am encouraged to press the point upon you because of a trial which has been made in connexion with one great industry. Prof. Bone, in seeking to perfect the training of advanced students of Chemistry, and well aware of the value of the factory in the scheme of practical education, has transferred his students for definite periods from his laboratories for the study of large-scale processes where he has placed them under supervision on an organized plan. The effect upon the efficiency of these young men is one of the most impressive facts with which I have become acquainted. For the first time they have been brought into contact with the realities of Chemistry, and have exchanged the dullness of the Academy for the living active industrial world. Their outlook is immensely widened, their spirits are chastened, they are more ready to appreciate the importance of those subjects to which, on their return to Prof. Bone, they are introduced. At Skinningrove, these young men were placed under the supervision of experts, they were required to collate results of experimental work, handing in their results for examination and class criticism. In the ensuing year, we hope to develop and extend the system. We consider that, while a five-year academic course is the minimum which the men we seek to train should undergo, we hold that much of the time of the final two years should be spent in industrial works as part of the College training.

I am puzzled to explain how it has come about that students who aim at entrance into a profession of, say, chemistry or economic botany are, during the whole of their academic training, deprived of any opportunity of becoming acquainted with the applications of their sciences. I am satisfied from all I have heard that, if an average youth aims at attaining a high position in the chemical world, his scientific training must extend over a prolonged period, and that it is safe to permit some degree of specialization towards the end. But a College curriculum alone should not—indeed, cannot—admit of any useful specialization. This constitutes a reason for bringing the practical arts within the purview of the man while he is undergoing a College course. It is in medicine especially that the student is brought into contact with the practical side of his future profession. One cannot conceive of a school of medicine without its hospital. Similarly, one cannot—at least, I cannot—conceive a school of applied chemistry without its factory. When we hear of the establishment of technological departments in the Imperial College, we surely do not mean to imply that any of the applications of chemistry to the arts can be taught within the College. The establishment of a technological faculty in a University does not imply that the University is prepared to teach, for example, the art of gas producing and all that this implies. What these things do mean and must mean for chemists is that, after a period of training in general science, and especially in the science of chemistry, the applications of chemical science should receive specialized consideration. Now, such consideration can only be obtained through the agency of men derived from the industries, and this is why in the Imperial College—in, for example, the Department of Advanced Engineering—the instructors are not men of the status of professors, but are men already established as experts and of a high reputation, who afford to their students a definite practical training in specialized branches of civil, mechanical, and electrical engineering.

I have already quoted for you the statements made by an important committee that provision for advanced technological education is necessary and that students are not obtaining it sufficiently. We are told that industrial efficiency is suffering in consequence. It is up to the colleges and the industries to correct what may be wrong. This is the function, the special function, of the Imperial College in so far as the problem is presented from the academic side. But its academic side is of lesser importance, certainly of lesser difficulty. What is more important and of greater difficulty is the attempt to enlist the sympathy of the manufacturer. In the humbler walks of technical education the manufacturer is asked to permit his employees to attend classes in technical schools; in the higher walks we ask him to take advanced students to himself, and, on an organized plan arranged with our professors, to provide that knowledge which the academy cannot supply. A demand of this kind is only justified by the consideration that we are here dealing with a great national question—one which involves the maintenance of our position in the great international industrial competition.

There is one further point to which I should invite your attention before I conclude. It is our experience, and apparently the experience of others, that the need for a Central Bureau of Information in Applied Science is being increasingly felt. The collection and tabulation of recent scientific work, so that it may be immediately available, is a pressing necessity for scientific men engaged in industrial undertakings. The references to the Imperial College for specific information are constant, and, though every endeavour is, of course, made to supply the most precise and the fullest information, one often feels that, unless it is of a kind definitely in the line of work of an individual or a Department, omissions of great importance may occur. There exists no definite and responsible organization, and in my opinion we should set it up. I conceive it to be a necessity of the times that such a College as ours should establish, when it can, an Information Bureau. But this should be done so thoroughly as to leave no opportunity for adverse criticism. It should be complete in its organization and methods at the outset, and not be a thing of gradual growth.

The responsibilities of such a bureau are immense, but its opportunities for supplying a need of the day are great. I cannot conceive a centre more suitable for the establishment of this bureau than London, and especially that part of London where the Imperial College is located. The magnificent science library is well known. There is collected every recent scientific paper of importance produced at home or abroad. Its situation in the Imperial College is a consideration of moment when we come to consider the establishment of a central clearing house of scientific information, available for workers in the applications of science.

REVIEWS.

The Hamptonshire Experiment in Education. By C. R. Ashbee. (3s. net. Allen.)

In reading the first half of the 166 pages of this book we have the feeling that we are dealing rather with the Hamptonshire *experience* than with any sort of experiment; but the second half justifies the title. At the beginning the author deals with the commonplaces of educational administration, though it can hardly be said that he does this in a commonplace way. He speaks quite frankly. His thesis is that the problem of education in a country village is quite different from that in a town, and that up till now the town ideal has dominated in such a way as seriously to cripple education in agricultural districts. The limitations to the efficiency of village schools he sets out as four. (1) The professionalism and timidity of the teacher; (2) the poverty of the child; (3) the rigidity of the system of teaching; and (4) the false ideal of the town standard, and the weakness of the existing bodies of managers as a check upon bureaucracy. Number four makes teachers prick up their ears, and certainly those who do not love centralized control will find much gratification in these pages. Teachers may not be so well pleased with the author's insistence on the confusion in the public mind between "certification" and "intrinsic value." It appears that in the experience of Hamptonshire "it is by no means the certified teachers that are always the best." The author speaks of "the arbitrary and fantastic term of higher education," and proceeds to justify the blame implied in the phrase. He makes out an excellent case against the present arbitrary separation of one branch of education from another, and gives some examples that cannot prove pleasant to those who are responsible for the classification criticized.

More than two-thirds of the work have to be read before we

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come to the actual experiment that gives the book its title. The author explains that "it is so hard to say what precisely the Hamptonshire experiment is." Further on we find that it "is an idea, but it is also a practical attempt to arrive at an educational policy for a given area, and that mainly agricultural." This policy is illustrated by detailed curricula and schemes of work. The general underlying principle appears to be the humanizing of the ordinary technical courses. The pupil as a human being is taken as the educational unit, and seven educational principles are laid down to justify the organic ideal on which the experiment is based. A committee set to examine the whole matter reports: "The experiment is a good one, but so far it is but a questionable success." The cause of the comparative failure is the lack of effective legislation, and the Committee makes certain practical suggestions. It will thus be seen that the book is not merely destructive. There are without doubt knowing persons who are aware of the exact locality of Hamptonshire. We are not among those. But, wherever it be, if we have here a true record of the work of some dozen years of progress in educational administration it does seem a pity that the results should be at present in jeopardy because of the rigidity of certain regulations issued from Whitehall. The book deserves the serious attention of those who have the moulding of our educational policy.

From Locke to Montessori. By William Boyd. (2s. 6d. net. Harrap.)

Since the publishers' wrapper round this book bears the motto "Nothing new under the sun," we are not surprised to find from the text that Dr. Boyd is not so much impressed with the originality of the Italian educator as is, say, the Rev. Cecil Grant. Her admirers have not yet made up their minds about how to describe her. She is Madame, Signora, Doctor (preferably in the Italian form, Dottoressa) and even Professor. It is characteristic of Dr. Boyd that he cuts the knot by dropping all titles and calling her simply Montessori. On state occasions he does speak of Dr. Montessori, but this is quite exceptional. The reader will rapidly gather, however, that this dropping of titles is no mark of disrespect, but merely indicates that the author is treating his subject as he treats her predecessors: she is made to rank with Itard and Séguin.

Dr. Boyd adopts the historical approach, and when he has dealt with the half-dozen forerunners of the Dottoressa he puts us much more at our ease in her presence. She is no longer the phenomenon she is so often represented to be: she falls naturally into her place in the educational succession. The great value of the first or historical part of this book lies in the exposition of the methods of Pereira, Itard, and Séguin. All that our author has to say about Locke, Condillac, and Rousseau is excellent, and is necessary to make of the historical presentation a rounded whole; but the ordinary reader is familiar with, at least, the broad outlines of the contributions made by this trio of standard educationists, while the three who have gained their reputation by the study and treatment of the mentally defective are only beginning to be known. Dr. Boyd does his readers the compliment of assuming that they recognize that they do not know enough about those direct forerunners of Montessori and are willing to learn more.

When the reader has been prepared by a statement of what Itard and Séguin really thought and did, he is introduced to Maria Montessori, and the second part of the book is given up to criticism. To begin with, Dr. Boyd cannot admit that she has divested herself as completely as she thinks of philosophical preconceptions. "Even to disclaim a philosophy, as Montessori does, implies a philosophy." On the scientific side itself our author is not quite sure of her soundness. After quoting a passage from her book, he adds the comment: "The profusion of italics in this passage is worthy of attention for the indication it gives of the unscientific temper of Montessori's mind. It reveals the growing faith of a devotee or the sentiment of a romancer rather than the critical attitude of a scientist." For his own part, Dr. Boyd is certainly critical enough. His attitude is philosophical rather than scientific, and, elaborate as he is in his analyses, he cannot be accused of unfairness. Since he is familiar with the various forms the

same doctrine has adopted in various ages, he is not so much impressed with the Dottoressa's views on such matters as Individuality and Freedom as are those who meet with them for the first time in her pages. Mr. Boyd, however, has no inordinate respect for originality merely as such. "So far, however, from this lack of originality being a weakness of Montessori's case, it constitutes its real strength." One cannot but sympathize with anyone who has written about Freedom and then falls into the hands of such a keen analyst as Dr. Boyd. It is inevitable that we should hear about "the vagueness and confusion of thought that characterize her first definition of freedom"; and we are not surprised to find that "as a matter of fact, guidance and prohibition, though carefully concealed from the pupils, play as large a part in the Montessori system as in any other." If M. Boutroux takes up the system of the Dottoressa he will find as much to object to as he does in Rousseau, though the objectionable points are better concealed. But apart from philosophical subtleties, Dr. Boyd's main objection to the Montessori system is its neglect of the humanistic subjects. This defect he believes is inherent, and is not "a mere accident which is capable of being repaired by the extension of her system. It is deeply rooted both in her temperament and in her psychology, and so long as she continues faithful to herself and is not turned aside from her course by the opinion of others, it is likely to remain without any considerable change."

Dr. Boyd points out that the system, like every other that has emanated from one mind that has little regard for tradition, is subject to all the limitations of the author's personality. In the case of Montessori, "These limitations, if we may judge from her writings, are very great. Except for a religious zeal which consorts badly with a materialistic conception of the human mind, her thought seems to be closely confined to its medical and scientific concerns. There are no signs of appreciation of art in any form, and only a very partial indication of literary interest. Even her undoubted love of children, which is the driving power of her educational endeavour, has an element of hardness and austerity in it." But Dr. Boyd does not leave the matter there. He indicates that equal limitations, though sometimes of a different kind, mark the work of all the great educators, and no reader will lay down this book without a feeling that its author has dealt fairly by the Dottoressa and her works. The book is probably the best serious criticism of the new system that has yet appeared.

Problems of Village Life is the subject of a new volume in that useful series "The Home University Library" (1s. net, Williams & Norgate). The book displays close familiarity with agriculture and the conditions of the rural labourer. It describes the history of land tenure and agricultural methods dependent upon the modes of tenure from early times, and dwells specially upon their economic effects upon the peasantry. The latter part is a strong advocacy of land reform, with the twofold object of promoting intensive cultivation and the repeopling of rural England with a peasantry either as owners or as direct tenants of the State as landlord. The writer wishes to reinstate agriculture as a premier industry, sustaining the population without dependence on *foreign* food supplies. In his enthusiasm, he wholly ignores the facts of an immense population sustained by highly productive manufactures, mines, and commerce. On no system of agriculture could Great Britain with forty-five millions of inhabitants be self-supporting, nor could agriculture provide the standard of living derived from other industries, nor would rural life give to these classes the attractions the modern town affords.

Land reform may very profitably multiply small cultivators of the market-gardening type, and co-operation of farmers could beneficially influence production and the profits on milk, butter, eggs, &c., but the sources of the material wealth of Great Britain are obviously in skilled industries, and the occupations of the large majority must inevitably be determined thereby in an age of scientific development, while commerce can secure for a vast industrial population the full advantages of the fertility of the globe. The example of Denmark is presented: but her excellent methods of agricultural co-operation and organization are enforced by stern necessity; she *must* live by agriculture, since she has no minerals nor manufacturing possibilities, while her sturdy industry and careful methods yield but a comparatively small return when contrasted with the earnings of British labour in other industries.

The writer seems to think that Land Nationalization would alter the problem; he must, however, supply better reasons than the argument by analogy from the Post Office for any economic benefit to be derived from Land Nationalization. The Post Office monopoly is a case of the simplest routine, involving trifling initial outlay of capital, no risk, no competition with other methods, since it produces nothing for sale, and only distributes, regulating its charges so as to maintain a surplus of profit.

Land Nationalization would necessitate purchase or debt on a gigantic scale and an expensive administration by the State. Farming demands capital, skill, and scientific knowledge, and involves many risks: the rent surplus would be variable and uncertain in many cases. The project might involve a huge economic loss, and many difficulties would arise with an official landlord much resembling a tax-gatherer. As a commercial venture, the prospects can in no sense be held to be desirable for a Government investment. There are other methods by which small holders may be encouraged without the risks of ownership by the State.

Apart from the bias of the personal equation which permeates the book, it is interesting and instructive, and contains much information on a subject of national interest.

Unemployment, another volume of the "Home University Library," is an addition to economic inquiry by Prof. Pigou. It is a searching investigation into the various causes of unemployment, their consequences to the community, and the remedies which have been adopted, with an estimate of their worth and success. The problem is one of the most difficult questions connected with modern social organization; it is complicated by the growing complexity of the modes of industry, the enormous extent of a worldwide commerce, a huge population, and the changes in transport of goods and increasing facility of communication.

The volume is severely scientific in its analysis of the underlying causes of unemployment, which comprise social and moral as well as economic factors; it examines the varying conditions of the labour market and the rates of wages, the influence of the cyclical movements of trade, the causes of industrial disputes, the action of trade unions, and the methods adopted by the State to remove difficulties and ameliorate the conditions of irregular labour, with some estimate of their degree of success. Suggestions of remedies capable of adoption by the entrepreneur and the financial promotion of larger undertakings are considered, and the modifications effected by recent legislation through labour exchanges and insurance and other devices for amelioration are duly described and weighed. While avoiding technical language the book presents a valuable summary of the essential elements of the problem; it is a book that should stimulate to more detailed inquiry into the circumstances of irregular employment, and to a search for effective remedies for this fruitful cause of chronic poverty.

Principles of Property. By John Boyd Kinnear. (Smith, Elder.)

This small book of 150 pages is one of many recent publications which owe their existence to the growing interest in the inequalities in the sharing of wealth which have lately been displayed in many forms. The author essays to explain the origin and growth of wealth; in very lucid and cogent reasoning he traces the rise and development of all kinds of property to the use of Nature's forces, man's labour, and the skilful employment of capital, combined in various forms, according to the nature of the particular industry. Half the treatise is thus an easy and popular exposition of elementary economics, not less sound and convincing from its unconventional method.

Private property of every kind, including land, is shown to arise from industry, thrift, and investment, and to rest upon the institutions of law and order. An interesting chapter deals with various attempts to substitute socialistic principles for

those of private property, and the difficulties attendant on such schemes are analysed and illustrated. The latter half of the book is devoted to an examination of property in land and the proposals for its ownership and control by the State. This leads to a description of the circumstances which led to the appropriation of land and a discussion of the problems which arise out of private ownership. In this connexion the interests of the different classes concerned are examined in an impartial spirit. Projects for the nationalization of land are then reviewed and their economic tendencies are duly set forth. Land as a unique form of wealth is shown to follow the general principles which govern all wealth, and its full utilization in the interests of Society to be consistent with private ownership. This fact is illustrated by the present methods of inducing colonization by the offer of full possession of the soil. A brief description of some attempts at communism in land follows with the causes of their collapse. The views of single taxers are examined with some acuteness, and the inadequacy and futility of their proposals are exposed. It is somewhat disappointing to find this luminous treatment of a contentious problem marred by expressions of sympathy with the exploded fallacies of protection for agricultural industry. It comes as a shock to find so clear an exposition of economic principles can co-exist with a belief that import duties on the primary necessaries of life are consistent with the best interests of the nation as a whole.

OVERSEAS.

We gather from a recent number of *Indian Education* that all is not well with the teaching of literature. The only comment the student could make on Wordsworth's "Lucy Gray" was that "It is a Jim without a Flora." This is evidently the best he could make of his lecturer's "gem without a flaw."

America is not very happy about the prospects of good English in view of the kind of writing that is current in the daily press. In the *English Journal*, the organ of the National Council of Teachers of English, Mr. Fred Newton Scott has an excellent article on "The Undefended Gate," in which he deals faithfully with the erring journalists. He makes the half-serious suggestion that to the many sections already existing in an American paper there should be added a "Filth Section," or Sterquilinium, which might be printed in red ink, so that it could be readily found by those who wish it and easily avoided by those who don't.

The American *Educational Review* for February has a striking article on "The Woman Peril in American Education," in which some significant figures are given. The author, F. E. Chadwick, lays down "the broad principle that no woman, whatever her ability, is able to bring up properly a man child," and then proceeds to show that his countrymen do not act upon this broad principle. In 1911, out of the 533,606 teachers in the public schools 423,278 were women. In Connecticut the women form 93·3 per cent. of the whole body of teachers. Omaha has 97 per cent.; Wheeling, in West Virginia, has 97·5 per cent.; Charlestown, South Carolina, 99·3 per cent.; and "in forty-six towns of four to eight thousand inhabitants there is no man on the force." The following is an interesting fact: "The equalization of pay for men and women teachers in New York City has caused a reduction in the pay of the former. The result is that in the training schools for teachers there are now but 14 men as against 1,918 women."

The February number of *Education* (Boston) is strong in reproof. Mr. W. A. Harper has an article on "The Mistakes of Pedagogy" by which teachers of pedagogics will probably not be sufficiently impressed. Another writer puts high-school teachers right with regard to three fallacies. But the most interesting item is the editorial comment on a movement to abolish grammar school graduating exercises. The editor is strongly in favour of their abolition. "They are a concession to a more or less urgent demand on the part of inexperienced pupils, thoughtless teachers, and unwise parents for a vain display, which is equally unjustifiable from the standpoint of all three of the parties named . . . . the parents have to pay for expensive graduating dresses; and the pupils

(*Continued on page* 196.)

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lose several weeks' time. . . . Worst of all, a premium is put upon leaving school at the completion of the eighth grade. There is no more reason for putting up a spectacular celebration at the close of this grade than at the completion of any previous year of study."

The *School Review* (Chicago) is evidently not pleased with the means taken to secure the re-election of Mrs. Young as Superintendent of Education in Chicago. It appears that the Mayor has caused certain members of the Board to resign in order that others might be appointed who were in favour of the re-election. The interesting point is that the *Review* regards members chosen for such a definite reason as mere "rubber stamp" members. The *Review* is further concerned with another political matter that touches education. The pattern makers of Saginaw, Michigan, are opposing trade schools on the grounds that these schools are selling the products of the students' labour. The trade union people further demand that all teachers in trade schools should be union men, and the *Review* does not quite see it.

"The Cambridge Medieval History."—Vol. II: *The Rise of the Saracens and the Foundation of the Western Empire.* (20s. net. Cambridge University Press.)

The present volume covers a space of some three centuries, beginning with Justinian and closing with Charles the Great—a bustling period, little known in England, and here treated very largely by foreign scholars. Justinian, indeed, is surely pretty well known in England—and in Cambridge; yet it is Prof. Diehl, of the University of Paris, that narrates the conquest of Africa and Italy by Justinian's generals, and describes Justinian's administration in the East, his building projects, his economic measures, his zeal for orthodoxy—an excellent summary in a comparatively limited space. The chapter on Roman Law, however, is furnished by Dr. Roby, a Cambridge Senior Classic of long ago, who has long and creditably worked at the subject, and who occupies fully as much space as Prof. Diehl, not in an attempt to rival Gibbon's famous Forty-fourth Chapter, but in indicating the antecedents and plan of Justinian's legislation and in summarizing such parts of it as "are most connected with the general society of the period or afford some interest to an English reader from their resemblance or contrast to our own law." If the latter half (the summary) is not very satisfactory, there is some excuse in the multiplicity of the materials; and, after all, the general reader will find it useful as far as it goes, without suspicion of weak spots. But was a contract of sale complete when the parties had "agreed to the mode of fixing the price"? Was anyone "giving aid *or* counsel for a theft liable for the same"? Was a robber subjected to "a penalty of fourfold the value"? Might a man have "a usufruct in consumables"? Prof. Fisher continues the history of the Franks from the accession of Clovis to the fall of the Merovingian Dynasty, and describes the political and social institutions of Gaul during the Merovingian period—a masterly survey of a depressing, yet most interesting, stretch of some two and a-half centuries. Dr. Rafael Altamira handles vigorously the history of Spain under the Visigoths, with a fresh discussion of the Councils of Toledo, some notice of Visigothic law, literature, and art, and an estimate of the reciprocal influences of Visigoths and Spaniards.

Dr. Hartmann, of Vienna, traces the rise and fall of the Lombard Kingdom in Italy, with a clear account of its varying political and social organization, and he describes the Imperial administration of Italy and Africa. Archdeacon Hutton furnishes an admirable account of Gregory the Great, who "gave to the Papacy a policy and a position which were never abandoned or lost." The Roman Emperors from Justinian to Heraclius are excellently depicted by Mr. Norman H. Baynes, and their followers from Heraclius to Leo the Isaurian, by Mr. E. W. Brooks. Mahomet and Islam are most capably treated by Prof. Bevan, and the Westward expansion and the decline of the Saracen power by Prof. Becker, of Hamburg. One of the most notable chapters, from the pen of Dr. Peisker, of Graz, treats luminously of the expansion of the Slavs, with instructive explanations of their society, religion, and warlike experiences. The Kelts and the Teutons, under Heathenism, and their conversion to Christianity, form the subjects of three chapters, divided into place-groups, all by most competent scholars. Then follow the Carlovingian Revolution and Frankish intervention in Italy by Prof. Burr, of Ithaca; and two outstanding chapters, by Prof. Seeliger, of Leipzig, on the conquests and the legislation and administration of Charles the Great. Dr. Foakes-Jackson brings the history of the Papacy down to the times of Charles the Great, and Prof. Vinogradoff is quite at home in discussing the foundations of society and the origins of Feudalism. The great movements and the great men are presented on a scale that renders them readily intelligible to the general reader, and the scholarship of the writers not only brings forward fresh facts and fresh views, but singles out for emphasis the points that essentially matter. This volume is a very important addition to the English library of history. The portfolio of maps, fourteen in number, is a most valuable accompaniment. The bibliography and the index are laudably ample.

A General Course of Pure Mathematics from Indices to Solid Analytical Geometry. By Arthur L. Bowley, Sc.D., Professor of Mathematics at University College, Reading, and Reader in Statistics in the University of London. (7s. 6d. net. Clarendon Press.)

The author explains that the book has been written to "form a protest against the multiplication and separation of mathematical subjects, and against the enormous waste of time involved in the course now generally followed." Economy in superfluous detail is therefore a distinctive feature, and the course shaped steers between those two extremes—the purely theoretical and the purely practical method of treatment, the idea being to "reach important and advanced results by the simplest and shortest legitimate route." On this economical basis all the specially important sections of the subject above matriculation standard likely, from a purely practical point and utilitarian point of view, to prove valuable to students in their subsequent careers, have been condensed into the compass of a single volume. The condensation of so much useful material into a comparatively small space has been excellently arranged, and the efficiency of the work is in no way diminished.

It is true that much of what the author terms the "overgrowth of algebra, trigonometry and conic sections" has been cut away, but this paring down is the economic feature, and its immediate effect is to raise the standard of the work well above that of a mere cram-book for examination purposes only. There is a noticeable absence, too, of that superabundance of examples so frequently crowded into textbooks. Intentional omissions such as these have enabled the size of the book to be cut down to an almost irreducible minimum.

The originality of the work lies rather in the variety of the work presented than in the actual method of treatment, which, however, is sound and accurate and quite in accordance with the modern ideas, graphical work playing an important part. The proofs are rigid and exact, and considerable care has been taken to emphasize the restrictions necessary regarding the application of incommensurable quantities to theorems proved only for commensurable quantities. Sufficient of the calculus has been included to indicate its importance and general use, and the main principles of co-ordinate geometry of both two and three dimensions have been well reviewed. The treatment of imaginary quantities has been based upon the use of an operator which when repeated reverses the sign of the quantity operated upon. This method allows of an easy demonstration that the rules applicable to such an operation are quite in accordance with the ordinary mathematical conventions.

The book will possibly not appeal directly to the mathematical specialist, but we know of no better volume to suit the needs of a student who, studying for a scientific career, requires a concise and yet comprehensive introduction to a wide range of pure mathematics.

The author is to be congratulated for producing so excellent and important a piece of work.

The Theory of Relativity. By Robert D. Carmichael. (1 dol. New York: John Wiley & Sons. London: Chapman & Hall.)

We have here the twelfth of a series of monographs on

mathematical subjects. These are due each to a different writer, and are now issued separately, whereas originally all but the latest addition to the series—namely, Mr. Carmichael's "Theory of Relativity"—formed but a single volume. The ideas which underlie the subject of this short treatise have been carefully formulated by the author. It should be remembered that he is dealing with a theory whose validity is as yet not universally accepted, and that, although its principles have stimulated many workers to make them a subject of enthusiastic research, still a number of our greatest scientists are amongst those unprepared at this stage to regard the theory as a satisfactory one. The present discussion is suggestive and tentative. The author refrains entirely from dogmatism and, inasmuch as a closer investigation of the subject may well lead to literature of a controversial character, definite expressions of opinion as to details of the theory propounded are at the moment premature. In the meantime, whether the theory is destined to establish fully its claim to acceptance, or whether men of science may ultimately find themselves obliged to reject it as untenable, there is a worthy mission for it to fulfil, and one that is likely to be abundantly fruitful. These are the days when a close inquiry into the foundations of mathematical science is in progress, and a similar investigation of the philosophical basis of physical science appears to be equally desirable, since there exists a tendency to lose sight of the precise significance of the conventions agreed upon with regard to our conceptions of such fundamental notions as time, space, mass, energy, and so on. In laying down his postulates and enunciating the theorems connected with his exposition of relativity, the writer dwells more particularly on experimental facts as exemplified by the sciences of optics and of electricity and magnetism. But he lays stress repeatedly on the fact of the absolute generality of the assumptions and propositions of his theory.

GENERAL NOTICES.

EDUCATION.

The Problem of the Continuation School. By R. H. Best and C. K. Ogden. (1s. net. King.)

This paper-covered book of eighty pages is written by an experienced business man and a Cambridge scholar. It is provided with an introduction by no less a person than Dr. Kerschensteiner, and is illustrated by fourteen full-page photographs. It gives an account of how Germany is solving the problem of the compulsory Continuation School. Reference is made to the various centres where the problem is most satisfactorily solved, but the great bulk of the book is rightly given to the system as elaborated in Munich. The work will be found of value by everyone who is interested in national education. Matters are presented in an easy, natural and untechnical way. The failure of our own voluntary system makes us keenly interested in the German success, and the general effect of reading this book is far from depressing. It is, in fact, exhilarating. Educational administrators will be glad to learn that the German system can be adopted —with the modifications rendered necessary by our special needs—by a series of stages, which need not disorganize our general system. Some of these stages we have already gone through, and this book should greatly help those in authority to continue wisely the course they have begun.

Report of the Conference of Educational Associations, January 1914. (1s. 6d. post free from Frank Fairman, 74 Gower Street, W.C.)

This is a record of the proceedings of the twenty-one educational associations that held meetings of various kinds between January 2 and 10, 1914. Most of the matter it contains has been already printed in connexion with the various associations, and much of it has been dealt with in a more or less critical way in the public press, but in its present convenient form it is a very creditable contribution to the current educational literature of the country. To read the book through would be like reading the dictionary. The change of subject is frequent and sudden. But to glance through its 328 pages is to get an idea of the variety of interests involved in the vast subject of education. This volume cannot fail to do a great deal towards broadening the outlook of all interested in any aspect of educational work. The Teachers' Guild is to be congratulated on this culminating success of its efforts to bring into touch the various educational agencies of the country.

CLASSICS.

Elementary Latin Grammar. By Arthur Sloman, M.A. (2s. 6d. Cambridge University Press.)

This grammar follows in the main the recommendations of the Joint Committee of the Classical Association on Grammatical Terminology. It carries the student up to the standard of the Senior Locals or London Matriculation. The book is excellently written with admirable clearness and conciseness. Exceptional usages are mostly avoided. There are useful appendixes on the declension of Greek nouns, hidden quantities (which are marked throughout the book), and other topics. It would be difficult to find a better book on the ground covered.

Salamis in Easy Attic Greek. By G. M. Edwards, M.A. (1s. 6d. Cambridge University Press.)

The account of the Battle of Salamis in the Eighth Book of Herodotus forms the basis of this book. The language is much simplified, passages being freely omitted, and the dialect is Atticized. The book, which is well printed, contains a map of Salamis, short notes, and a vocabulary. It will be found a very useful school reader.

Anecdotes from Pliny's Letters. By W. D. Lowe, Litt.D., M.A. (1s. 6d. Clarendon Press.)

A number of interesting passages are taken from Pliny and rewritten in simple Latin to form a series of reading lessons graduated in difficulty. The first few pieces are written in simple sentences, but towards the end of the book longer periods and more difficult constructions are admitted. The book has an historical introduction, short notes, and a vocabulary. It is a very good first reader.

Dialogues of Roman Life. By S. E. Winbolt, M.A. (1s. 6d. G. Bell.)

These dialogues, written in easy Latin, deal with a variety of topics of everyday life—Roman houses, streets, dress, games, school life, and travel. They are suitable for dramatization and should prove very useful to teachers who wish to make some use of the Direct Method. The book gives just that kind of material in which that method is most effective. It has a vocabulary and a number of appropriate illustrations.

Virgile : Les Bucoliques. Par Frédéric Plessis, Professeur adjoint à la Sorbonne.

This edition is intended primarily for schools, but in this country will be most useful to University students, whose needs are kept in mind. The text is good and the notes brief and scholarly. The book contains a life of Virgil reproduced from "La Poésie Latine" by the same author, and some brief remarks on the "Bucolics" as literature. Metrical peculiarities are treated in the introduction, which also contains a short account of the manuscripts, with the chief variant readings. These two features should prove particularly useful.

Latin Quantity and Accent. By F. W. Westaway. (3s. net. Cambridge University Press.)

In this book Mr. Westaway gives us a very useful manual of Latin pronunciation. The book is written simply and may be understood without any previous knowledge of phonetics, but all the points necessary to the correct reading of Latin prose and verse are adequately treated. Controversial statements are avoided, and the author confines himself mainly to what may be regarded as certain in the pronunciation of Latin. Many will be glad of the chapter on Hidden Quantities, in which rules are given enabling the length of the vowel to be determined in the great majority of cases. There are very good chapters on word accent and verse ictus in Latin, and not the least useful feature is a bibliography of some fifty works bearing on the subject. The author says that the book is not written for schoolmasters, but it should certainly be in the hands of all teachers of Latin who have not yet mastered the new pronunciation.

FRENCH.

(1) *Odeurs de Paris.* By Louis Veuillot. (2) *La Femme de demain.* By Etienne Lamy. (Each 1s. net. Dent.)

These are two attractive volumes in the Collection Gallia. All lovers of French literature should examine the series.

(1) *Molière : Théâtre Complet.* 5 vols. (2) *Corneille : Théâtre.* (3) *Boileau : Œuvres.* (Each 1 fr. net. Hachette.)

These are remarkably cheap reprints—unfortunately they look cheap. The type is set close and leaves a very narrow margin, but it is clear.

Le Barbier de Séville. By Beaumarchais. Edited by F. H. Osgood. (2s. Ginn.)

The contents are : a good introduction on Beaumarchais, and the place and importance of his work, 19 pages ; text 112 pages ; notes 12 pages, in which there is too much translation but good historical references. What is the use of "*l'* omit in translation," page 84 ; or

the confused note on *belle*, page 82; "an idiom," page 89? Vocabulary, 34 pages—this should hardly be necessary.

French Lessons on the Direct Method. Senior Course. By Marc Ceppi. (2s. Hachette.)

The contents of this volume are: a summary of grammar rules, 22 pages; text with marginal explanations in French, direct method exercises on the subject matter, word formation, grammar, 144 pages. There is also a list of verbs and a useful index and table of contents. The text is taken from Barthélemy, Montesquieu, Buffon, Mme de Staël, La Fontaine, Hugo, Gautier, Courier, Souvestre. Some pieces have been set in the London Matriculation and other examinations. As in the earlier volumes, the exercises (including revision exercises and free composition) show good teaching sense.

Marie Claire à Villevieille. By Marguerite Audoux. Adapted and edited by A. G. Philip. (1s. 6d. Oxford Press.)

The contents are: text 46 pages, *questionnaire* 15 pages, exercises 20 pages, notes 2 pages, vocabulary 19 pages—the volume may be had without a vocabulary. It is hardly necessary to call attention to the quality of the narrative, but it may not have occurred to every reader that the simplicity of the language, of the method, and of the subject make Marguerite Audoux's famous work very suitable for class work. The intensive method of study employed in the exercises is here in place.

HISTORY.

(1) *Outlines of Greek and Roman History.* By Mary Agnes Hamilton. (3s.) (2) *Outlines of European History.* By M. O. Davis, formerly History Mistress at the High School, Edgbaston, Assistant Lecturer on Education in the University of Birmingham. (3s. 6d.) (3) *Outlines of Modern History.* By J. D. Rogers. (3s. 6d.) Oxford: Clarendon Press. London (Oxford University Press): Humphrey Milford.

These are outwardly attractive and handy volumes on general history, with varying numbers of useful maps and other interesting illustrations. The difficulty in each case is to boil down the matter into a small compass. Miss Hamilton offers a reasonably good summary, though short sentences make a jerky style, and the tone is metallic. Miss Davis traces the evolution and history of the countries of Modern Europe, with some account of colonial and foreign extensions, but the compression is cruel. Her account of the origin of the first and second China Wars, by the way, conveys a totally wrong impression; she cannot have read the Parliamentary Papers. After a "meagre outline of two thousand years of history" in 34 pages by way of introduction, Mr. Rogers starts from 1492, and groups events in movements rather than under nations or reigns: thus, "new worlds, new wars, and new religions"; "new kingdoms, new nations, new colonies," &c. Still, the facts are not less numerous, and the congestion is painfully severe. "Mr. Milford will be pleased to consider applications for specimen copies" of these three volumes.

The King's Government. A Study of the Growth of the Central Administration. By R. H. Gretton, formerly Demy of Magdalen College, Oxford. (2s. net. G. Bell.)

Mr. Gretton traces the development of the existing departments of Government—the evolution of a public Civil Service from the King's Clerks, "the personal staff, so to speak, of the Crown." Sir William Anson, indeed, finds the germ of the governmental departments in the Curia of the Norman kings, a "group of officials, the holders of the new political offices," but Mr. Gretton points out that this is true "only in so far as the official duties alone of some members of the Curia are regarded," and his analysis of the evidence must be taken to establish his own position. The changes in the status of the King's Secretary from the time of Richard II to the Revolution are carefully investigated and explained, and the theory and practice of ministerial responsibility during the next hundred years throw a striking light upon the English habit of political development, and furnish a sound principle of historical criticism of an important period. The more conscious reconstructions of the past century have resulted in a systematic organization, presenting a startling contrast to the beginnings eight centuries ago. The volume is an excellent piece of original research work, and it is most usefully illustrative of the working of the constitution.

"Lindsey Historical Series"—*A Brief Tudor-Stuart List.* By J. S. Lindsey. (2s. 6d. Cambridge: Heffer.)

The brochure consists of "alphabetical and classified lists of English works of general interest bearing on British History, 1485–1714, with particulars of dates and prices and various editions, and schemes of study." It will be serviceable to teachers and to elementary students of history.

English History in Contemporary Poetry. No. 1: *The Fourteenth Century.* By Prof. Herbert Bruce, M.A. No. 3: *The Tudor Monarchy*, 1485 to 1588. By N. L. Frazer, M.A. (1s. net each. G. Bell.)

Prof. Bruce treats his subject somewhat elaborately, "dealing mainly with aspects of political thought and with important social tendencies," not in chronological order, but in groups of subjects. Mr. Frazer keeps to the order of time, and is more liberal with specimens. The series provides instructive collateral materials for the history student.

Extracts from the Chronicles illustrating English Mediæval History. By Alice Raven. (6d. net. Macdonald & Evans, 4 Adam Street, Adelphi, W.C.)

The extracts cover about three centuries, from the coronation of William the Conqueror to the Good Parliament (1066–1376). They are all useful so far as they go, and they are nicely printed. The illustration of Edward I's dealings with Scotland, by the way, is of such a nature as to leave a wrong impression, for readers will not always bear in mind the inevitable incompleteness of the presentation.

"University of London Historical Series."—*The Reign of Henry VII from Contemporary Sources.* Selected and arranged in three volumes with an Introduction by A. F. Pollard, M.A., Hon. Litt.D., Fellow of All Souls College, Oxford, Professor of English History in the University of London. Vol. II: Part I, *Constitutional Documents;* Part II, *Social and Economic History.* (10s. 6d. net. Longmans.)

The two parts occupy nearly equal space. The extracts are chosen with mature judgment, and form a most comprehensive and effective illustration of the period. Brief notes, introductory to extracts or at the foot of the page, are pointedly instructive, and the marginal dates are always useful. The work will henceforth be an indispensable companion to the ordinary history of the reign of Henry VII.

A Short History of London. By Kenneth H. Vickers, M.A., Professor of Modern History in the University of Durham, sometime Organizer and Lecturer in London History to the London County Council. (2s. 6d. Macdonald & Evans.)

Prof. Vickers makes but modest pretensions, yet his little book is executed on sound historical principles, and, though packed with matter, it is written in an engaging style. It tells clearly what is definitely ascertained about London during the Roman, Saxon, and Norman periods, the guilds and companies, the ecclesiastical, social, and political conditions, the Plague and the Fire, and so on down to the end of the eighteenth century. Of course, it ought to bring the story down to date; and, as there can be no doubt about a second edition, we shall rely on the author's half promise to complete his original plan. The development of the city and its activities is very carefully and effectively shown. The book will be useful to teachers as well as interesting to general readers. There is a tolerably full index.

ENGLISH.

The Students' Elocution Book. By Louie Bagley and George Goodes. (1s. 6d. Simpkin, Marshall.)

The exact purpose of this book is not very clear. Its plan and arrangement may be illustrated by one of the chapters, for example, that on phrasing. The brief instructions with which it begins consist of a general indication of the importance of phrasing, and of its close relation to the ideas to be conveyed. The rest of the chapter is occupied with extracts from well-known writers which the student is instructed to practise, "paying particular attention to the phrasing." No indication is given in either of the examples of the way in which the phrasing should be done. Such assistance could hardly be adequate for guidance in the absence of a teacher, and with even meagre help from one it would be superfluous. Moreover, it is a pity that in the chapter on what the authors call "phonation" they should have been led—presumably in their anxiety to avoid the use of phonetic symbols—into such inaccuracies as the representation of the vowel sound in *my* by *ah-ee*, and the description of the vowel sound in *may* as a simple long vowel.

Essays of Elia and Last Essays of Elia. Edited by A. Hamilton Thompson. (2s. 6d. each. Cambridge University Press.)

Each of these volumes is prefaced by a critical study of the essays and of Lamb's work in general. The notes are clear, simple, and well chosen. They are chiefly concerned with Lamb's numerous allusions and quotations, on which they throw valuable light.

Book Ways. By Edith Kimpton. (2s. Ralph, Holland.)

This little book of some 280 pages gives an outline of the history of English literature from the earliest times to the present day, with numerous references to the chief writers both of prose and of poetry. Its sub-title is "An Introduction to the Study of English Literature," and those teachers who believe in beginning the study of literature in this way will no doubt find the book useful for their pupils. For those, on the other hand, who believe that the sounder way is to lead children first to know and love literature and then to study its history, the book will have less value. A large proportion of it is occupied with descriptions of the chief masterpieces of literature, which would be superfluous and, therefore, uninteresting to pupils who had already studied those masterpieces at first-hand.

(*Continued on page* 200.)

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Representative Passages from English Literature. Chosen and arranged by W. H. Hudson. (2s. 6d. Bell.)

This selection aims at giving illustrative examples of the work of the chief writers of prose and poetry from the earliest times to the close of the last century. As the author himself points out in his preface, it is plainly impossible in a single volume to carry out such an aim with any completeness, and it is difficult to avoid some scepticism as to the value of making the attempt. Ought not students rather to be sent to the fountain head, with all necessary help and guidance in their choice? The author's apology, if we may call it so, consists of the statement that the present volume is intended primarily as a companion to his "Outline of History of English Literature," and of a hint that the works of some of the writers chosen are not easily accessible to the ordinary reader. Assuming the need of such a volume as this, the choice of extracts has been made with the skill and judgment to be expected of the compiler.

GEOGRAPHY.

"Cambridge County Geographies."—(1) *Northumberland.* By S. R. Haselhurst, M.Sc., F.G.S. (2) *Merionethshire.* By A. Morris, F.R.Hist.Soc. (1s. 6d. each. Cambridge University Press.)

These recent additions to the series, excellent in themselves, serve to illustrate some of the disadvantages of working to a rigid stereotyped system, for two vastly different counties have their well-marked individualities largely obscured by the method of treatment; nevertheless, both volumes represent a large amount of work on the part of their authors. The illustrations are well chosen, and the sketch maps and plans by the author of "Northumberland" indicate an effort to obtain originality of treatment. In (2) there is a confusion between the work of the Royal Meteorological Society and that of the Meteorological Office which has been previously referred to in these columns in connexion with another County Geography.

"Atlas Geographies." By T. Franklin, A.C.P., and E. D. Griffiths, B.Sc.—Part II: *Junior Geography.* (2s. 8d. net.) Part III: *Senior Geography*, No. 4, *Africa.* (1s. 6d. net. Johnston.)

Part II, which represents seven separate numbers bound into a complete volume for one year's work in the middle forms of a secondary school, allows us to realize more clearly the intentions of the authors relative to the entire work. The letterpress shows careful preparation, while the numerous excellent maps, nearly a hundred in number, form a complete atlas. The use of loose orographical maps with transparent route maps is a good feature. Two of the black and white sketch maps need slight revision, viz. Fig. 5, which shows the Cantabrians as fold mountains and the Apennines as something else, and Map 29A has the lettering so large that the map is badly obscured. The "Senior Geography" is to consist of five parts, and if the standard set by No. 4 be maintained then the whole volume will meet the requirements of senior work in geography.

Commercial Geography: The British Empire. By Frederick Mort, M.A., B.Sc. (1s. 6d. Oliver & Boyd.)

This is largely a reprint of certain sections of Mr. Mort's larger "Commercial Geography," which was favourably noticed in these columns last year. The statistics have been carried forward from 1910 to 1911, and a useful collection of questions has been appended, but, on the whole, there is little or no change in the letterpress. The book is highly satisfactory.

RELIGION.

The Layman's Old Testament. Edited by Canon Glazebook of Ely. 1 vol. 4s. 6d. In two Parts: (1) Historical Works, (2) The Prophets, Psalms and Wisdom Books, 2s. 6d. each. Oxford University Press.

This book is a very interesting attempt to provide what is badly needed—some guidance in the study of the Old Testament for the lay reader. It has often been said that no book is so ill-edited as the Bible. The absence of chronological sequence in the order of the books, especially of the Prophets, and the presence of much that is unintelligible and unprofitable to any but the expert student, make some rearrangement and selection of material necessary. Five books have been omitted altogether—Leviticus, Chronicles, Esther, Lamentations and the Song of Solomon, and many others have been considerably curtailed. Perhaps the greatest advantage to be gained by these and other changes lies in the continuity given to the history by the omission of late repetitions (*e.g.* Chronicles), by the transference of narrative passages from the Prophets to their context in the history (*e.g.* parts of Jeremiah), and by the inclusion of the First Book of the Maccabees. Amongst other reforms we would notice the re-arrangement of "Isaiah" so as to show the different historical settings of its earlier and later authors, the collection of all scattered apocalyptic passages into one section, and the excellent arrangement of the text whereby poetry is readily distinguishable from prose, and the Psalter looks what it really is—a hymn-book. We strongly commend the book to the notice of teachers. For the use of boys and girls in school it would be invaluable.

A New School Hymnal. Edited by E. M. Palser, M.A., Senior English Master of Westminster City School. (1s. net. Harrap.)

This is an admirable piece of work. Among its innovations are the following: (1) interesting comments on the circumstances of composition, &c., are made at the end of many hymns; (2) after each hymn the name of its author's school is given; (3) blank pages are left for additional hymns; (4) a hymn is occasionally given in the original foreign language, *e.g.* "Ein' feste Burg"; (5) a full index of tunes is prefixed: (6) additional passages for chanting are given with the pointing. The whole is very compact and well arranged.

Schemes of Religious Instruction for Infant Schools. By Rev. R. W. Balleine, M.A.; Foreword by Bishop of Manchester. (1s. 6d. Longmans.)

Contains schemes actually worked out in the Church of England infant schools in Manchester, in all of which the need for correlating the different parts of the subject and for allowing the children opportunities for self-expression is well kept in view.

MATHEMATICS.

Examples and Test Papers in Algebra. By W. J. Walker, M.A., Senior Mathematical Master at Wrexham County School. (1s. 6d. Mills & Boon.)

This book includes practically no bookwork of the ordinary type, sets of examples taking its place. Definitions and explanation of terms are also omitted, as the author considers that these should be dealt with by the teacher as required. The book covers the requirements of the various public examinations up to quadratic equations. It hardly seems necessary to have included so much work on H.C.F. and L.C.M., as plenty of examples on factors are given, unless the inclusion may be justified by the unfortunate demand made in examination syllabuses for a knowledge of these two things. The short section on graphs of statistics is useful.

Mental Arithmetic for Juniors. By Samuel Gibson, Marshfield Council School, Bradford. (1s. Bell.)

This book outlines a plan of work for Standards I, II and III, arranged to cover forty weeks' teaching in each case. There is a systematic graduation of difficulty combined with constant revision. By the time this course has been worked through, a fair amount of facility and confidence will have been gained in the easy manipulation of numbers, but of course a lot will depend upon the natural aptitude of the pupil and the patience of the teacher.

A Common-sense Algebra. By Asa Burniston, L.C.P. (Hons.), Head Master Rainhill Road Council School, Barnoldswick, Yorks. (With Answers, 2s.; without, 1s. 6d. Heinemann.)

Designed and suited for use in the upper classes of elementary schools, in evening schools, and in the lower forms of secondary and technical schools. The treatment, if somewhat unorthodox, is simple and gradually progressive, the subject being carried up to easy simultaneous equations. Constant repetition is a noteworthy feature, and minimizes the chance of a student forgetting the early part of the work when dealing with the later portions. It is a pity that a graphical interpretation of positive and negative quantities is omitted. The balance simile for equations is good. The book will serve a useful purpose.

Exercises from "A New Algebra." Parts I–IV. By S. Barnard, M.A., and J. M. Child, B.A., B.Sc. (2s. 6d. Macmillan.)

The work from which the exercises which constitute the present volume have been extracted will be remembered by many of our readers as having been favourably reviewed some time since in the columns of this journal. In placing the new publication in the hands of teachers the authors have sought to comply with the wishes of those who entertain a preference for purely oral instruction, and merely require for their pupils the aid of ably compiled collections of questions and test-papers, these being invaluable for the purpose of securing economy of time both in and out of the classroom.

MUSIC.

A Textbook of Music. By Henry C. Banister. New edition revised by W. Alfred Parr. (3s. 6d. Bell.)

The original of this book was published so long ago as 1872. Since that time it has run through numerous editions and reprints, and has been largely used by students and teachers. Obviously, little can be said in criticism of such a deservedly popular work. In certain cases, however, the wonderful progress made in the art in recent years has rendered Banister somewhat out of date. It is in these places that the editor, Mr. W. A. Parr, of the Königl. Hochschule für Musik, Berlin, has made very judicious modifications. Students will find that the book now meets modern requirements in all branches of theoretical music. Banister had a penchant for lengthy prefaces to his works. In these he gave much valuable advice to the student. We are glad to find that his prefaces to the various editions have been retained in the present book. Slight omissions have been made of matter that is no longer relevant. We should like to say a word in praise of the admirable Chronological Chart drawn up by the

editor and given at the end of the volume. It gives at once a complete and comprehensive survey of the history of musical development. With this new edition Banister enters on a fresh lease of life, which we hope will be as long and useful as that of the former editions have been.

The Growth of Music. A Study in Musical History for Schools. Part II. By H. C. Colles. (3s. 6d. Clarendon Press.)

The first part of this work was issued towards the end of 1912. It was cordially received by all thinking musicians, who felt that such a book was really needed. However, the abnormal price of 4s. *net* was, to say the least, prohibitive for a small book of some 160 pages. We congratulate the publishers on reducing the price to 3s. 6d., at which price Part II is also sold. The present part is a worthy successor of the before-mentioned Part I, which dealt with the earlier history of the Art, "From the Troubadours to J. S. Bach." The section now under notice considers "The Age of the Sonata, from C. P. E. Bach to Beethoven." A glance at the chapter headings shows at once the comprehensiveness of the volume—nothing of real importance having been overlooked. The chapters are; "A Bird's Eye View," "Instruments," "The Lives of Haydn and Mozart," "Sonata Form," "Quartet and Symphony," "Music, Words and Drama," "Opera in Paris and Vienna," "Beethoven." Despite a few small blunders, which one is surprised to find in such a clever work, the book is one well worth reading, and it is very readable. Especial value is given by the inclusion, at the end of every chapter after the first, of a well-considered and well-selected list of illustrative works. The author intends these to be performed so that the student may have a practical acquaintance with the works discussed in each chapter. On the whole Mr. Colles may be complimented on the production of a really good History of Music particularly suitable for use in schools and "Music Study Circles." His third volume to complete the series is eagerly awaited.

HANDWORK.

The Book of School Handwork. Edited by H. Holman. Vol. II. (8s. 6d. net. Macmillan.)

This is an encyclopædia of educational handwork subjects, methods, materials, tools and organization. Each article is written by an authority on the work. There are thirteen chapters, dealing with different subjects such as woodwork, weaving, domestic work, strip-work, and so on. One chapter deals with handwork in secondary schools. "Woodwork in a Girls' Secondary School," by C. Seaman, will be useful to many head mistresses who are thinking of introducing this subject. The volume is fully illustrated and is of great practical use.

The Normal Guide to Model Drawing. By Arthur Schofield. (2s. 6d. net. Normal Press.)

This is a book in the "Normal Tutorial Series," the general editors of which are E. E. Denny and P. Lyddon-Roberts. Mr. Schofield has given us a practical treatise on model drawing in accordance with the requirements of the examinations of the Science and Art Department. There are diagrams on each alternate page, with instructions opposite.

(1) *Metal Modelling.* By Mabel M. Brunton. (1s. 6d. net.) (2) *Modelling for Infants and Juniors.* By Mary Blackburn. (2s. 6d. net.) (3) *The Child's Life in Groupwork.* By Edith A. Newnham. (2s. net.) (Arnold & Son.)

Good paper, clear printing, and useful illustrations make these books attractive. Each gives the necessary information as to tools and materials. In "Metal Modelling" we have a clear demonstration of a simple and artistic form of educational handwork. The second book deals mainly with clay modelling, gives musical accompaniments, and shows how modelling may be used in connexion with the other lessons. The third is most attractive, and should prove widely useful for young children. In the game of making representations of the home in varied materials much sound education and training may be acquired.

Common-sense Knitting: A Suggestive Course for Junior and Senior Girls. By Jane A. Fleming. (3s. 6d. net. Arnold & Son.)

A full treatise on various forms of knitting, with digrams, illustrations, and clear instructions. The writer is an enthusiast for, and understands the educational value of, her subject.

An Elementary Course of Practical Lace-making. By Margaret and Aileen Winser. (3s. net. Arnold & Son.)

A teacher's handbook outlining the first principles on which designing is based, and giving a practical introduction to the art of making the various pillow laces. It aims at affording a practical introduction to lace-making both as an educational occupation for children and also as an employment for older persons.

PHILATELY.

The Boys' Book of Stamp Collecting. By Douglas B. Armstrong. (6s. Grant Richards.)

Stamp collecting makes a strong appeal to boys, but sometimes the growing collection is abandoned because it has ceased to interest. The young collector may grow tired of merely adding coloured labels to his album if he knows nothing of the history and meaning of postage stamps. Mr. Armstrong's book will help him here and teach him to understand how the hobby may develop with his growing intelligence. The story of the introduction of postage stamps makes a strong appeal to the imagination. The actual making of stamps is fully described. The reader learns how to gather and keep a collection, and how to get the full benefit from it. The writer's style is clear and pleasant to read, and he makes a good case for the educational value of stamp collecting as tending to the acquisition of general knowledge on a wide basis. For the school library or for a present to a youthful collector the book is a genuine asset.

PUBLICATIONS RECEIVED.

EDUCATION.

The Problem of the Continuation School and its successful Solution in Germany. By R. H. Best and C. K. Ogden. King. 1s. net.

From Locke to Montessori. By William Boyd. Harrap, 2s. 6d. net.

Murray's Shilling Library.—The Schoolmaster. By A. C. Benson. Cheaper edition.

CLASSICS.

Synthetic Latin Vocabularies: a Preparation for Sight Translation. Compiled by the Rev. Hedley B. Taylor. Blackie, 1s.

A Shorter Second Latin Course. By E. H. Scott and Frank Jones. (An abridgment of the authors' original "Second Course.") Blackie, 2s.

The Year's Work in Classical Studies, 1913. Edited by Cyril Bailey. Murray, 2s. 6d. net.

FRENCH.

Collection Gallia.—Contes Fantastiques. By Charles Nodier. Dent, 1s. net.

Harrap's Modern Language Series.—(1) Intermediate Exercises in French Grammar and Composition. By C. W. Bell. 9d. (2) Fabliaux et Contes du Moyen Age. By J. E. Mansion. 6d.

Passages for French Dictation and Unseen Translation. Selected by D. A. Wynne Willson. Blackie, 6d.

Blackie's Little French Classics.—(1) Souvenirs de Madame Le Brun. (2) Laurette. By Alfred de Vigny. (3) Récits des Temps Mérovingiens. By Thierry. 4d. each.

Blackie's Copyright French Texts.—Contes de l'Heure Présente. 10d.

Blackie's Longer French Texts.—L'Oncle Scipion et sa Promesse. 8d.

Blackie's Modern Language Series.—Bamboula. 1s.

GERMAN.

Blackie's German Texts.—Der Unsichtbare. 6d.

Schiller and his Poetry. By W. H. Hudson. A critical account, with illustrative extracts. Harrap.

ENGLISH.

Lectures on Dryden. By A. W. Verrall. Edited by Margaret de G. Verrall. Cambridge University Press, 7s. 6d. net.

The Golden Treasury. By Palgrave. With Notes by C. B. Wheeler Milford, 2s. 6d.; notes separately, 1s. 6d. net.

The Mother Tongue.—Book II: The Practice of English. Edited by Prof. Adamson and A. A. Cock. Ginn, 2s. 6d.

King Richard III. Clarendon Press, 6d. net.

Oxford Plain Texts.—(1) Macaulay: Life of Oliver Goldsmith. (2) Macaulay: Life of John Bunyan. Clarendon Press, each 4d. cloth, 3d. paper.

Lays of Ancient Rome. By Macaulay. Introduction and Notes. Blackie, 10d.

Progressive Précis Writing. By H. Latter. Blackie, 3s. 6d.

English Literature for Schools. Edited by Arthur Burrell. Selections from Longfellow. Dent, 6d.

A Primer of English Grammar. By George R. Kirwan. Longmans, 9d.

In Eastern Wonderlands. By Charlotte Gibson. Harrap, 1s. 3d.

Boys Who Became Famous. By F. J. Snell. Illustrated. Harrap, 1s.

English Literature in Prose and Verse from Dryden to Burke. Compiled by Edith L. Elias. Harrap, 1s. 3d.

Johnson's Life of Dryden. Edited by A. J. F. Collins. Clive, 2s.

Highroads of Literature: Book VI. Nelson, 2s.

Bacon's Essays. Normal Press, 1s. net.

Notes on Kingsley's "Westward Ho!" By Victor H. Allemandy. Normal Press, 9d. net.

The Heroes. By Kingsley. Cambridge University Press, 1s.

Poetry and Life Series.—Wordsworth: His Poetry. By W. H. Hudson. Harrap, 1s.

Poetry and Life Series.—Browning and His Poetry. By Ernest Rhys. Harrap, 10d.

Blackie's New Systematic English Readers.—(1) First Reader, 10d.; (2) First Phonic Primer, 5d.; (3) Second Phonic Primer, 7d.; (4) First Infant Reader, 8d.; (5) Second Infant Reader, 8d.

Rambles among our Industries.—(1) In the Potteries; (2) Leather and Bootmaking; (3) Wool and the Weaver; (4) Paper and Printing; (5) The Seaman and his Craft. Blackie, each 9d.

Longmans' Classbooks of English Literature.—(1) Selections from Thackeray; (2) Tom Brown's Schooldays: (3) The Coral Island; (4) A Selection of Poetry; (5) Hereward the Wake; (6) Settlers in Canada: (7) Selections from Dickens; (8) Selections from Macaulay's History of England; (9) The Heroes. (Well printed in large type and bound in cloth, 1s. each.) (10) Eric Bright-eyes; (11) The Refugees; (12) Lysbeth. (1s. 6d. each.) (13) The King of the Golden River (6d.); (14) Alice's Adventures in Wonderland (8d.).

HISTORY.

A Guide to Historical Fiction. By Ernest A. Baker. New Edition. entirely rewritten and greatly amplified, with copious Index. Routledge, 21s. net.

Macaulay's Essay on Clive. Edited by A. J. F. Collins. Clive, 1s. 6d.

A First History of England. By J. Nelson Fraser. Bombay: Cooper, 1s. 6d. net.

Little Dramas of History. Books I and II, each 6d.; Book III, 8d. McDougall.

Heroes of Exploration. By A. J. Ker and C. H. Cleaver. Blackie, 1s. 6d.

Heroes of European History. By A. R. Hope Moncrieff. Blackie, 1s. 6d.

The Story of Jeanne d'Arc. By E. M. Wilmot-Buxton. Harrap, 1s.

The Thresholds of History. By H. R. Hall. Harrap, 1s.

Britain and her Neighbours. Book V: 1485–1688. Book VI: From 1688. Blackie, each 1s. 8d.

Heroes of Welsh History. By David W. Oates. Harrap, 9d.

Piers Plowman Histories. Junior Book VII. George Philip, 2s.

The Foundations of International Polity. By Norman Angell. Heinemann, 3s. 6d. net.

MATHEMATICS.

An Introduction to the Infinitesimal Calculus, with applications to Mechanics and Physics. By G. W. Caunt. Clarendon Press, 12s.

Plane and Spherical Trigonometry (with Five-place Tables): a Text-book for Technical Schools and Colleges. By Robert E. Moritz. Chapman & Hall, 10s. 6d. net.

First Year Course in Mathematics: Geometry and Trigonometry. By K. J. Sanjana. Bombay: Cooper, Rs. 1.12.

Arithmetical Papers for Senior Pupils. By W. Braginton. Macdonald & Evans, 2s. 6d.

Test Papers in Elementary Algebra. By Clement V. Durell. Macmillan, 3s. 6d.

Blackie's Experimental Arithmetics.—(1) Book VII, 5d.; (2) Teacher's Guide to Book VII, 1s. 6d.

LOGIC.

An Introduction to Logic: from the Standpoint of Education. By L. J. Russell. Macmillan, 2s. 6d. net.

RELIGION.

English Literature for Schools Series.—Bible Stories (Old Testament). Edited by Arthur Burrell. Dent, 6d.

The Psalms in Human Life. By Rowland E. Prothero. Cheaper edition. Murray, 2s. 6d.

The Poem of Job. Translated, in the metre of the original, by Edward G. King. Cambridge University Press, 5s. net.

MORAL EDUCATION.

Conduct and Character. By J. H. Wicksteed. Nelson, 1s. 6d. net.

MANUAL INSTRUCTION.

Pitman's Handwork Series.—Raffia Work. 2s. net.

Pastel Work: Flowers. By H. A. Rankin. Pitman, 4s. net.

KINDERGARTEN.

A Garden of Games: a Series of Educational and Recreational Games for Infants and Juniors. By Annie Ingham. Pitman, 2s. 6d. net.

MISCELLANEOUS.

Dental Diseases in Relation to Public Health. By J. Sim Wallace. *The Dental Record*, 3s. net.

Health. By Mildred M. Burgess. Lewis, 1s. 6d. net.

Women Workers in Seven Professions. Edited by Edith J. Morley. Routledge, 6s. net.

MATHEMATICS.

Readers desiring to contribute to the Mathematical columns are asked to observe the following directions very carefully:—

(1) *To write on one side only of the paper.*

(2) *To avoid putting more than one piece of work on a single sheet of paper.*

(3) *To sign each separate piece of work.*

17492. (Professor J. C. Swaminarayan, M.A.)—Absolute curvature and tortuosity at a point of a curve in space are $1/\rho$ and $1/\sigma$ respectively. If the length of the arc, measured from a fixed point on the curve, be equal to s, show that the co-ordinates (x, y, z) of the point are given by the formulæ,

$$x = s - \frac{s^3}{6\rho^2} + \frac{s^4}{8\rho^3}\frac{d\rho}{ds},$$

$$y = \frac{s^2}{2\rho} - \frac{s^3}{6\rho^2}\frac{d}{ds} + \frac{s^4}{24\rho^3}\left[2\left(\frac{d\rho}{ds}\right)^2 - \left(1 + \rho\frac{d^2\rho}{ds^2} + \frac{\rho^2}{\sigma^2}\right)\right],$$

$$z = \frac{s^3}{6\rho\sigma} - \frac{s^4}{24\rho^2\sigma^2}\left[2\sigma\frac{d\rho}{ds} + \rho\frac{d\sigma}{ds}\right],$$

where powers of s higher than the fourth are neglected.

Note by R. C. Archibald, M.A., Ph.D.

The results of this Question proposed in April and solved in September, 1913, are well known since Mathew's paper in the *Quarterly Journal of Mathematics*, Vol. xxvi (1893), pp. 27–30. They may also be found in L. P. Eisenhart's *Differential Geometry* (Boston, 1909), Ex. 10, p. 21, in the following form:—

$$x = s - \frac{1}{6\rho^2}s^2 + \frac{1}{8}\frac{\rho'}{\rho^3}s^4 + \ldots,$$

$$y = \frac{s^2}{2\rho} - \frac{1}{6}\frac{\rho'}{\rho^2}s^3 + \frac{1}{24}\left[\left(\frac{1}{\rho}\right) - \frac{1}{\rho^3} - \frac{1}{\rho\sigma^2}\right]s^4 + \ldots,$$

$$z = -\frac{1}{6\rho\sigma}s^3 - \frac{1}{24}\left[\left(\frac{1}{\rho\sigma}\right)' + \frac{1}{\sigma}\left(\frac{1}{\rho}\right)'\right]s^4 + \ldots.$$

17510. (E. G. Hogg, M.A.)—Discuss the formation of quadratic expressions of the types

(i) $(p-1)px^2 - 2p(p+1)x + (p+1)(p+2)$,

(ii) $2q^2y^2 - (2q+1)^2y + 2(q+1)^2$,

whose factors are of the form

(i) $2[rx-(r+1)][sx-(s+1)]$,

(ii) $[uy-(u+1)][vy-(v+1)]$.

Examples: $1680.1681x^2 - 2.1681.1682x + 1682.1683$
$= 2(492x-493)(2870x-2871)$,

$2.97512^2y^2 - (97512+97513)^2y + 2.97513^2$
$= (57121y-57122)(332928y-332929)$.

Solution by the Proposer.

Let BC, the hypotenuse of the right-angled triangle ABC, be divided in D so that the radii of the inscribed circles of the triangles ADB, ADC are equal; also let BD : DC $= m : n$. The following relation among the quantities involved admits of easy proof,

$$m^2(2b^2-bc) - 2bcmn + (2c^2-bc)n^2 = 0 \ldots\ldots\ldots\ldots\text{(A)}.$$

If now $b = 2c$, we get $m : n = 2 : 3$.

If this value for the ratio $m : n$ be inserted in (A), we have

$$8b^2 - 25bc + 18c^2 = 0,$$

i.e., $\quad 2.2^2b^2 - (2+3)^2bc + 2.3^2c^2 = 0, \quad (b-2c)(8b-9c) = 0.$

The result of inserting in (A) the value $8b = 9c$ gives

$$7.8n^2 - 2.8.9mn + 9.10m^2 = 0,$$

i.e., $\quad 2(2n-3m)(14n-15m) = 0.$

By inserting in (A) the value $14n = 15m$, we have

$$2.14^2b^2 - (14+15)^2bc + 2.15^2c^2 = 0, \quad (8b-9c)(49b-50c) = 0.$$

By continued insertion in (A) of the ratios $b : c$ and $m : n$ in the manner indicated above, we obtain the following series of quadratic forms:—

$$48.49n^2 - 2.49.50nm + 50.51m^2 = 2(14n-15m)(84n-85m),$$

$$2.84^2b^2 - (84+85)^2bc + 85^2c^2 = (49b-50c)(288b-289c),$$

(*Continued on page* 204.)

1914.

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The First Course of Lectures (Forty-second Annual Series) commenced on Thursday, February 5, at 7 p.m.

The aim of this course is to meet the needs of teachers who wish to improve their acquaintance with the psychological principles that underlie their profession, whether they have any examination in view or not. The lecturer will treat his subject in such a way as to fit in with the requirements of the College in connexion with its examinations for the Associateship, the Licentiateship, and the Fellowship. Guidance will be given for private study and reading, and problems will be set for such students as desire practice of this kind. Every opportunity will be taken of making practical applications of psychological principles to the ordinary work of the classroom.

SYLLABUS.

I. (*Feb.* 5.) *The Self.*—Nature of consciousness, general and individual: insulation of individual consciousness: resulting difficulties: polarity: the ego and the non-ego: the subjective and the objective: advantage of educator as external influence: psychological data of education: nature and scope of psychology: kinds of psychology — descriptive, empirical, rational, experimental: cross classification: genetic psychology and its special value for the teacher: Münsterberg's criticism.

II. (*Feb.* 12.) *The Habitual.*—General meaning of habit: its fundamental place in education: "causing the conscious to pass into the unconscious": the upper and lower brain: the growing point: association a *general* principle of organic development, though the term is often limited to ideas: relation to habit: convergent and divergent association: manipulation of habit: habit-making and habit-breaking: the intellectual side of habit introduces the problem of power resulting from knowledge: turning fact into faculty.

III. (*Feb.* 19.) *The Perceptual.*—The senses general and special: contribution sensation makes to knowledge: classification of pupils according to the "preferred sense": the training of the senses: distinction between sensation and perception: the mind's share in perception: meaning and limits of observation: relation to inference: the observation zone: the inference zone: the inference point: the gaping point: distinction between perception and apperception: the "here and now" element in perception.

IV. (*Feb.* 26.) *Imagination.*—Relation of imagination to perception on the one hand and to memory on the other: usual neglect of the mere image-forming aspect, and resulting emphasis on the aesthetic aspect: consequent suspicion: "the busy faculty": the so-called "kinds" of imagination differentiated by the number and kinds of conditions that limit its exercise: importance of clearly imaged ends in practical life: function of the imagination in geography, history, geometry, and other branches of the ordinary school curriculum: imagination as a drag on thought: day-dreaming.

V. (*March* 5.) *The Conceptual.*—Distinction between the gathering and the elaborating of psychological material: conception is elaborative: the static and dynamic views of ideas: ideas as forces: mental content: change of activity of a given idea, temporary and permanent: co-presentation and interplay of ideas: hierarchy of ideas: the fixed idea: marginal and focal ideas: apperception masses and soul-building: fusion, complication, and arrest: mediate and immediate recall: the possibility of the subconscious influence of ideas.

VI. (*March* 12.) *Modes of Expression.*—Relation between impression and expression: physical reactions of the organism: various theories of the origin of speech: possibility of thought without speech: words and their meaning: connotation and denotation: transitive and intransitive words: definition: laws of classification: difference between *having* an idea, *realizing* an idea, and *expressing* an idea: shorthand thinking: symbolism: gestures as a means of expression: self-expression as a means and as an end in itself: self-realization as the aim of education.

VII. (*March* 19.) *The Intellect.*—Distinction between the mind and the soul: former over-estimation of the intellect: present-day tendency to depreciate it: distinction between understanding and reason: the logical and the psychological standpoint: meaning of *thinking*: its formal and its practical aspects: the purposive element: relation of means to ends: the teacher's power to influence the thinking of his pupils: the laws of thought as thought, and the fundamental necessity of thinking: the criterion of thought: possibility of self-deception in thinking.

VIII. (*April* 30.) *Memory.* — Memory as a natural endowment: brute memory: not limited to mental processes: personal identity: possibility of improving the natural memory: relation between retention and recall: Bergson's two kinds of memory: use of the memory: predominance of purpose in manipulating the memory: need for selection of material: management of mental content: mnemonics and the educational application: learning by rote: pictorial and rational memory: memory in relation to reality: connexion between memory and imagination: occasional confusion between them.

IX. (*May* 7.) *Attention and Interest.* — Attention as a general innate quality: index of educability: essentially a prehensile process: has an active and a passive aspect: quarrels about the classification of the different kinds of attention: question centres round the relation of the will to attention: interest the pleasure-pain tone that accompanies attention: interaction between attention and interest: interest as means and as end: the mechanism of attention: its vascular, respiratory, and muscular accompaniments: potency of attitude: rhythm of attention: concentration and diffusion beats.

X. (*May* 14.) *The Emotions.*—Divergent views of the nature and functions of the emotions: the disturbance theory and the consequent depreciation of the emotions: the pleasure-pain tone that accompanies the activities of the soul: the McDougall view: the driving power of spiritual life: relation to ideas: expression of the emotions and the various theories connected with it: the Lange-James theory and its practical applications to school work: control of the emotions: the relation between feeling and desire; the element of activity.

XI. (*May* 21.) *Temperament and Type.*—Nature of temperament: its place as the physical basis of character: permanency of temperament: Lotze's view, and its educational application: possibility of deliberate change of temperament: physical attributes of the temperaments; relation to personality: meaning of type: contrast with average: classification of pupils by types, and its dangers: place of the living child as the teacher's real subject: ideal pupil as standard: deflection from this standard in two directions according as we consider intellect or conduct.

XII. (*May* 28.) *Will and Character.*—Relation of will to knowledge, on the one hand, and feeling on the other: place of desire in development of will: the meaning and function of the motive: fallacy of "the strongest motive": resolution of the dualism implied in the process of making up one's mind: metaphysical excrescences obscuring the problem of the freedom of the will: the evolution of the will: the memory of the will: the possibility of training the will: the time element, and its importance in all discussions of the teacher's responsibility in character-training.

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$$287.288n^2-2.288.289nm+289.290m^2$$
$$=2\,(84n-85m)(492n-493m),$$
$$2.492^2b^2-(492+493)^2\,bc+2.493^2.c^2$$
$$=(288b-289c)(1681b-1682c),$$
$$1680.1681n^2-2.1681.1682nm+1682.1683m^2$$
$$=2\,(492n-493m)(2870n-2871m),$$
$$2.2870^2.b^2-(2870+2871)\,bc+2.2871^2c^2$$
$$=(1681b-1682c)(9800b-9801c),$$
$$9799.9800n^2-2.9800.9801nm+9801.9802m^2$$
$$=2\,(2870n-2871m)(16730n-16731m),$$
$$2.16730^2b^2-(16730+16731)^2\,bc+2.16731^2c^2$$
$$=(9800b-9801c)(57121b-57122c),$$
$$57120.57121n^2-2.57121.57122nm+57122.57123m^2$$
$$=2\,(16730n-16731m)(97512n-97513m),$$
$$2.97512^2b^2-(97512+97513)^2\,bc+2.97513^2c^2$$
$$=2\,(57121b-57122c)(332928b-332929c),$$
$$332927.332928n^2-2.332928.332929nm+332929.332930m^2$$
$$=2\,(97512n-97513m)(568344n-568345m),$$
$$2.568344^2b^2-(568344+568345)^2\,bc+568345^2c^2$$
$$=(332928b-332929c)(1940449b-1940450c),$$
&c., &c.

17558. (R. Tata. *Suggested by* Question 17488.)—The area of the triangle whose vertices are the centres of gravity of the triangles ADE, BKL, CMN is $\frac{4}{3}\Delta$, BCDE, CAKL, ABMN being the squares described externally on the sides of the triangle ABC.

Solution by T. P. Trivedi, M.A., LL.B., *and* Professor K. J. Sanjána, M.A.

Let G_1 be the centre of gravity of the triangle ADE; then, working in areal co-ordinates, it is seen that A is (1, 0, 0), D is

$$(-a,\ b\cos C,\ b\sin C+c\cos B),$$

i.e., $(-\cot B-\cot C,\ \cot C,\ 1+\cot B)$,

and E is $(-\cot B-\cot C,\ 1+\cot C,\ \cot B)$.

Hence G_1 is the point

$$\tfrac{1}{3}(1-2\cot B-2\cot C),\quad \tfrac{1}{3}(1+2\cot C),\quad \tfrac{1}{3}(1+2\cot B);$$

and similar expressions hold for G_2, G_3. No factor is added as $x+y+z=1$ in every case. The area required is therefore

$$=\tfrac{1}{27}\Delta\begin{vmatrix}1-2\cot B-2\cot C, & 1+2\cot C, & 1+2\cot B\\ 1+2\cot C, & 1-2\cot C-2\cot A, & 1+2\cot A\\ 1+2\cot B, & 1+2\cot A, & 1-2\cot A-2\cot B\end{vmatrix}$$

$$=\tfrac{4}{3}\Delta\begin{vmatrix}1, & \cot C, & \cot B\\ 1, & -\cot C-\cot A, & \cot A\\ 1, & \cot A, & -\cot A-\cot B\end{vmatrix}$$

$$=\tfrac{4}{3}\Delta(3\cot A\cot B+3\cot B\cot C+3\cot C\cot A)=\tfrac{4}{3}\Delta.$$

17613. (Professor Neuberg.)—Calculer l'angle de Brocard d'un triangle ABC dont les côtés sont les trois racines de l'équation

$$x^3+Ax^2+Bx+C=0.$$

Solution by F. G. W. Brown, B.Sc., L.C.P., *and others.*

Let a, b, c be the roots of the given equation, ω the Brocard angle, then $\cot\omega=(a^2+b^2+c^2)/4\Delta$.

But $A=-(a+b+c)$, $B=ab+bc+ca$, $C=-abc$;

therefore $\Delta^2=s\,(s-a)(s-b)(s-c)=-s^4+s^2(ab+ac+bc)-abcs$

$$=\tfrac{1}{16}A^4+\tfrac{1}{4}A^2B+\tfrac{1}{2}AC;$$

therefore $4\Delta=\sqrt{(A^4+4A^2B+8AC)}$.

Again, $a^2+b^2+c^2=(a+b+c)^2-2\,(ab+bc+ca)=A^2-2B$;

hence $\cot\omega=(A^2-2B)/\sqrt{(A^4+4A^2B+8AC)}$;

thus ω may be found without solving the equation.

17601. (T. Muir, LL.D.)—Without departing from the determinant form, show that the skew determinant

$$\begin{vmatrix}ax+by+cz & ay-bx & az-cx\\ bx-ay & ax+by+cz & bz-cy\\ cx-az & cy-bz & ax+by+cz\end{vmatrix}$$

is equal to the axisymmetric determinant

$$\begin{vmatrix}ax-by-cz & ay+bx & az+cx\\ ay+bx & by-cz-ax & bz+cy\\ az+cx & bz+cy & cz-ax-by\end{vmatrix},$$

and generalize the result.

Solutions (I) *by the* Proposer *and* A. M. Nesbitt, M.A.; (II) *by* Professor E. J. Nanson; (III) *by* R. F. Davis, M.A.

(I) Taking the last requirement first we note that in the cases of both determinants of the n-th order, D_n, Δ_n say, the performance of the operation $x\,\mathrm{col}_1+y\,\mathrm{col}_2+z\,\mathrm{col}_3+\ldots$ enables us to remove the factor $x^2+y^2+z^2+\ldots$, or Σx^2 say, and the performance thereafter of the operation

$$a\,\mathrm{row}_1+b\,\mathrm{row}_2+c\,\mathrm{row}_3+\ldots,$$

enables us to remove the factor $a^2+b^2+c^2+\ldots$ or Σa^2 say. In both cases also, the factor remaining after these removals is a determinant of the next lower degree; but each element in the one case, though the same in magnitude as the corresponding element in the other case, differs in sign. The given determinants therefore differ only in sign or are exactly equal according as their degree is even or odd. Further, it will be found that

$$D_n=(-1)^{n-1}\Delta_n=(\Sigma ax)^{n-2}\Sigma a^2.\Sigma x^2.$$

From this may be constructed without difficulty a proof of the kind desired in the Question, when n is 3. For, on performing the two operations referred to, we obtain

$$ax\Delta_3=\Sigma a^2\Sigma x^2\begin{vmatrix}1 & y & z\\ b & by-cz-ax & bz+cy\\ c & bz+cy & cz-ax-by\end{vmatrix}$$

$$=\Sigma a^2\Sigma x^2\begin{vmatrix}1 & y & z\\ . & -cz-ax & cy\\ . & bz & -ax-by\end{vmatrix}=\Sigma a^2\Sigma x^2\begin{vmatrix}1 & y & z\\ . & cz+ax & -cy\\ . & -bz & ax+by\end{vmatrix}$$

$$=\Sigma a^2\Sigma x^2\begin{vmatrix}1 & y & z\\ b & \Sigma ax & bz-cy\\ c & cy-bz & \Sigma ax\end{vmatrix}=\begin{vmatrix}\Sigma a^2\Sigma x^2 & y\Sigma a^2 & z\Sigma a^2\\ b\Sigma x^2 & \Sigma ax & bz-cy\\ c\Sigma x^2 & cy-bz & \Sigma ax\end{vmatrix}.$$

The operation $\mathrm{row}_1-b\,\mathrm{row}_2-c\,\mathrm{row}_3$ then gives

$$ax\Delta_3=\begin{vmatrix}a^2\Sigma x^2 & a\,(ay-bx) & a\,(az-cx)\\ b^2\Sigma x^2 & \Sigma ax & bz-cy\\ c^2\Sigma x^2 & cy-bz & \Sigma ax\end{vmatrix}.$$

and the operation $\mathrm{col}_1-y\,\mathrm{col}_2-z\,\mathrm{col}_3$ gives

$$ax\Delta_3=\begin{vmatrix}ax\Sigma ax & a\,(ay-bx) & a\,(az-cx)\\ x\,(bx-ay) & \Sigma ax & bz-cy\\ x\,(cx-az) & cy-bz & \Sigma ax\end{vmatrix},$$

whence $\Delta_3=D_3$.

Two other generalizable results regarding determinants like Δ_n may be added, namely,

$$\begin{vmatrix}x^2-b^2-c^2 & ab+xy & ac+xz\\ ab+xy & y^2-c^2-a^2 & bc+yz\\ ac+xz & bc+yz & z^2-a^2-b^2\end{vmatrix}=\Sigma ax\,\Sigma a^2,$$

$$\begin{vmatrix}ax+cz+dw & -cy & -dy\\ -bz & ax+by+dw & -dz\\ -bw & -cw & ax+by+cz\end{vmatrix}=ax\,\Sigma ax,$$

where in both cases the factor is placed second whose power-index increases with the order of the determinant.

(II) If $\lambda=ax+by+cz$, the determinants are clearly equal to

$$\begin{vmatrix}\lambda & ay-bx & az-cx & a & x\\ bx-ay & \lambda & bz-cy & b & y\\ cx-az & cy-bz & \lambda & c & z\\ 0 & 0 & 0 & 1 & 0\\ 0 & 0 & 0 & 0 & 1\end{vmatrix},$$

$$\begin{vmatrix}2ax-\lambda & ay+bx & az+cx & a & x\\ bx+ay & 2by-\lambda & bz+cy & b & y\\ cx+az & cy+bz & 2cz-\lambda & c & z\\ 0 & 0 & 0 & 1 & 0\\ 0 & 0 & 0 & 0 & 1\end{vmatrix},$$

respectively, and by simple operations these reduce to

$$\begin{vmatrix} \lambda & 0 & 0 & a & x \\ 0 & \lambda & 0 & b & y \\ 0 & 0 & \lambda & c & z \\ -x & -y & -z & \pm 1 & 0 \\ a & b & c & 0 & 1 \end{vmatrix},$$

and these obviously reduce to

$$\begin{vmatrix} \lambda & 1 & 0 & 0 & a & x \\ & 0 & 1 & 0 & b & y \\ & 0 & 0 & 1 & c & z \\ & 0 & 0 & 0 & \lambda \pm \lambda & \Sigma x^2 \\ & 0 & 0 & 0 & -\Sigma a^2 & 0 \end{vmatrix},$$

and these are equal in value because the co-factor of the element $\lambda \pm \lambda$ is zero. Thus the common value of the determinants is $\Sigma ax\, \Sigma a^2\, \Sigma x^2$. A similar proof applies to the corresponding determinant of order n, the common value being $(\Sigma ax)^{n-2}\, \Sigma a^2\, \Sigma x^2$.

(III) Denoting the first determinant by Δ,

$$\Delta xyz = \begin{vmatrix} ax^2+bxy+czx & ay^2-bxy & az^2-czx \\ bx^2-axy & axy+by^2+cyz & bz^2-cyz \\ cx^2-azx & cy^2-byz & azx+byz+cz^2 \end{vmatrix},$$

$$\Delta x = (x^2+y^2+z^2) \begin{vmatrix} a & ay-bx & az-cx \\ b & ax+by+cz & bz-cy \\ c & cy-bz & ax+by+cz \end{vmatrix},$$

$$\ldots = \ldots\ldots\ldots\ldots \begin{vmatrix} a & -ay-bx & -az-cx \\ b & ax-by+cz & -bz-cy \\ c & -cy-bz & ax+by-cz \end{vmatrix},$$

$$\Delta xyz = \begin{vmatrix} a(x^2+y^2+z^2) & -ay^2-bxy & -az^2-czx \\ b(x^2+y^2+z^2) & axy-by^2+cyz & -bz^2-cyz \\ c(x^2+y^2+z^2) & -cy^2-byz & azx+byz-cz^2 \end{vmatrix},$$

$$\ldots = \begin{vmatrix} ax^2-bxy-czx & ay^2+bxy & az^2+czx \\ axy+bx^2 & by^2-cyz-axy & bz^2+cyz \\ azx+cx^2 & byz+cy^2 & cz^2-azx-byz \end{vmatrix},$$

$$\ldots = xyz\Delta'.$$

Hence $\Delta = \Delta'$.

17562. (E. R. Hamilton, B.Sc.) — A straight bore is made through a solid homogeneous ellipsoid. Prove that, whatever the position of the bore, a particle placed in the bore will perform simple harmonic motion under the attraction of the ellipsoid.

Solution by the Proposer.

Let (l, m, n) be the direction-cosines of the bore HK, (x_0, y_0, z_0) the co-ordinates of the point T at which HK touches one of the level-surfaces of the ellipsoid. Then, if P is the point (x, y, z) and TP $= s$, we have

$$\left.\begin{aligned} x &= x_0 + ls \\ y &= y_0 + ms \\ z &= z_0 + ns \end{aligned}\right\} \quad \ldots\ldots\ldots(1).$$

Then, since the potential V at an internal point of the homogeneous ellipsoid

$$x^2/a^2 + y^2/b^2 + z^2/c^2 = 1,$$

of density ρ, is given by

$$V = \tfrac{1}{2}\rho(D - Ax^2 - By^2 - Cz^2) \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots(2),$$

we have $V = \tfrac{1}{2}\rho\left\{D - A(x_0+ls)^2 - B(y_0+ms)^2 - C(z_0+ns)^2\right\}$.

Hence the restoring force along PT is

$$+dV/ds = -\rho\left\{Al(x_0+ls) + Bm(y_0+ms) + Cn(z_0+ns)\right\}.$$

But since T is the point of tangency of HK with a level surface, the component force along HK is there zero. Hence

$$Alx_0 + Bmy_0 + Cnz_0 = 0,$$

and so $\quad dV/ds = -\rho(Al^2 + Bm^2 + Cn^2)\, s,$

i.e., $\quad d^2s/dt^2 = -\rho(Al^2 + Bm^2 + Cn^2)\, s \ldots\ldots\ldots\ldots\ldots\ldots\ldots(3),$

and (3) represents a simple harmonic oscillation of period

$$\tau = 2\pi/\sqrt{[\rho(Al^2 + Bm^2 + Cn^2)]}.$$

There is a simpler, more direct proof for the special case of a bore passing through the centre (see Fig.). Q is the position of the particle. Describe an ellipsoidal surface similar and similarly placed to the external surface and passing through Q. Then since, if the matter were removed from within this surface through Q, there would be no force within the hollow shell thus produced, the force at Q in the solid ellipsoid is wholly due to the matter within the surface drawn through Q. But attractions of similar bodies at corresponding points are in the ratio of similitude of the bodies.

Therefore force along QO at Q $=$ (QO/RO) $\times$ force at R. That is, it varies as QO.

From this, of course, we incidentally obtain equation (2).

14355. (Rev. J. Cullen.)—Find forms of ϕ and ψ, such that

$$(\sin^2\theta\, d/d\theta)^n\, \phi(m, \theta) = \phi(m+n, \theta),$$
$$(\cos^2\theta\, d/d\theta)^{2n}\, \psi(m, \theta) = \psi(m+2n, \theta).$$

Solution by F. E. Relton, B.A., B.Sc.

The first equation is equivalent to

$$\sin^2\theta . d/d\theta . \phi(m, \theta) = \phi(m+1, \theta).$$

Denoting $\phi(m, \theta)$ by u, we can write this as

$$\sin^2\theta . du/d\theta - E_m u = 0,$$

whence, treating E_m temporarily as a constant, and integrating, we have $\quad u = C\exp(-E\cot\theta) = \left\{\exp(-E\cot\theta)\right\} f(m),$

the function being arbitrary. For simple forms put $f(m) = m,\ a^m$, or $\exp(mi\alpha)$, and we get

$$(m - \cot\theta)\exp(-\cot\theta), \quad a^m \exp(-a\cot\theta),$$

and $\qquad \exp(mi\alpha - \epsilon^{i\alpha}\cot\theta).$

The second equation is equivalent to

$$(\cos^2\theta . d/d\theta)^2\, \psi(m, \theta) = \psi(m+2, \theta),$$

or $\qquad \cos^2\theta . du/d\theta \pm E_m u = 0,$

where $\qquad u = \psi(m, \theta),$

leading to $\quad u = \left\{\exp(E\tan\theta) + \exp(-E\tan\theta)\right\} f(m),$

the function being arbitrary.

Simple values obtained as above are

$$a^m \cosh(a\tan\theta) \quad \text{and} \quad m\cosh(\tan\theta) + \tan\theta\sinh(\tan\theta).$$

17674. (A. M. Nesbitt, M.A.)—The number $N = 4a \pm 1$ is prime or composite according as $\left\{[\tfrac{1}{2}(N-1)]!\right\}^2 \pm 1$ is or is not divisible by N. [*E.g.*, $N = 17$ is a factor of $(8!)^2+1$; $N = 19$ is a factor of $(9!)^2-1$, and actually of $9!+1$.]

Solution by Lt.-Col. Allan Cunningham, R.E., *and others.*

$$\begin{aligned} (N-1)! &= [1.2.3\ldots\tfrac{1}{2}(N-1)][\tfrac{1}{2}(N+1)\ldots(N-3)(N-2)(N-1)] \\ &\equiv [1.2.3\ldots\tfrac{1}{2}(N-1)][-\tfrac{1}{2}(N-1)\ldots(-3)(-2)(-1)] \pmod{N} \\ &\equiv [1.2.3\ldots\tfrac{1}{2}(N-1)]^2(-1)^{\frac{1}{2}(N-1)} \pmod{N}; \end{aligned}$$

therefore $\qquad (N-1)!+1 \equiv \pm[\tfrac{1}{2}(N-1)!]^2+1 \pmod{N},$

and the sinister is divisible by N, when (and only when) $N = 4a \pm 1$ is a prime, by Wilson's theorem.

This proves the proposition (it is a known proposition).

17610. (C. E. M'Vicker, M.A.)—Taking, as centre of an inscribed conic, any point on the diameter of a given quadrilateral, construct the foci of the conic, and show from the construction that the axes of all conics touching four given straight lines envelope a parabola, provided that one conic of the system is a circle.

Solution by R. F. Davis, M.A.

If X, Y are the foci of a variable conic inscribed in a given quadrilateral, and F the focus of the parabola of the system, then FX, FY are equally inclined to a fixed straight line FE and FX.FY $=$ FE^2 (Mr. C. E. M'Vicker, Questions 16669, 16905, *Reprint*, Vol. xix). The centre U of the conic (the middle point of XY) moreover lies on a fixed straight line, the diameter of the quadrilateral. This diameter passes through E if one of the inscribed conics is a circle, centre and foci coalescing in E. Produce EF to E′ so that EF $=$ FE′. Then, since FX.FY $=$ FE^2 $=$ FE′^{2} and FX, FY are equally inclined to EFE′, XEYE′ is a harmonic quadrilateral; and therefore UE, UE′ are equally inclined to XUY and $\qquad$ UX^2 $=$ UE.UE′ $=$ UY^2.

Thus the envelope of XY is a parabola of focus E′ having for its directrix the fixed line EU.

QUESTIONS FOR SOLUTION.

17706. (C. W. Adams.)—A stick is let vertically down into a cylindrical petrol-tank whose axis is horizontal. Show how to graduate the stick to indicate $\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$ and $\frac{7}{8}$ full.

17707. (Professor R. Srinivasan, M.A.)—If

$$\psi(n) = \frac{d^r}{dx^r}\frac{\Gamma(x)}{(2n+1)^x},$$

show that $\int_0^{\frac{1}{2}\pi} (\log\log\cot\theta)^r (\log\cot\theta)^{x-1}\,d\theta = \sum_{n=0}^{\infty} (-1)^n \psi(n)$.

17708. (T. Muir, LL.D.)—Show that the number of terms in a zero-axial determinant of the n-th order is

$$(n-1)\left\{(n-2)!+\frac{2n-5}{3}(n-2)_2.(n-4)!+\frac{4n-19}{5}(n-2)_4.(n-6)! + \frac{6n-41}{7}(n-2)_6.(n-8)!+\dots\right\},$$

where $(n)_r$ stands for $n(n-1)\dots(n-r+1)/1.2\dots r$.

17709. (Lt.-Col. Allan Cunningham, R.E.)—Show how to form $(N)_r = X_r^3 + Y_r^3 = N_1N_2N_3\dots N_r$, where $N_r = x_r^3 + y_r^3$ (all numbers integers). Give numerical examples up to $r = 4$.

17710. (Norman Alliston.)—Find a rational right-angled triangle having all three sides of the form x^2-1.

17711. (Professor Neuberg.)—Si α, β, γ sont les racines de l'équation $x^3+ax^2+bx+c=0$, trouver l'équation cubique qui a pour racines $\alpha(\beta-\gamma)^2$, $\beta(\gamma-\alpha)^2$, $\gamma(\alpha-\beta)^2$.

17712. (A. M. Nesbitt, M.A.)—Prove that the series whose $(r+1)$-th term is $\dfrac{(2r)!}{2^{2r}(r!)^2(a+r+1)}$ is convergent, a being a positive integer; and that its sum to infinity is $\dfrac{(a!)^2\,2^{2a+1}}{(2a+1)!}$. Also show that

$$\sum_1^{\infty}\frac{1.3.5\dots(2r-3)}{2^{r-1}.r!} = 2.$$

17713. (Professor E. J. Nanson.)—Solve

$$x^2/a + y^2/b = a^2/x + b^2/y = a+b.$$

17714. (R. Vythynathaswamy.)—A tangent is drawn to the cissoid at (x_1, y_1); where it meets the curve again another tangent is drawn, and so on. The intercept of the n-th tangent on the X-axis being $= x_n$, show that $\underset{n=\infty}{\mathrm{Lt}}\; x_n.4^n = ay_1^2/x_1^2$.

17715 (C. E. Youngman, M.A.)—The centre C of an ellipse with semi-axes a, b is joined to a fixed point O, such that $OC = \frac{1}{2}(a-b)$; and as OC revolves forwards the ellipse revolves backwards half as fast round C. Prove that its envelope consists of two quartics: hypocycloid and hypotrochoid.

17716 (C. M. Ross, M.A.)—Perpendiculars are drawn from any point on the curve $x^{\frac{2}{3}}+y^{\frac{2}{3}} = a^{\frac{2}{3}}$ to meet the co-ordinate axes in A and B. Show that the envelope of the parabolas touching the axes at A and B is $x^{\frac{2}{7}}+y^{\frac{2}{7}} = a^{\frac{2}{7}}$.

17717. (R. F. Davis, M.A.)—Prove that the equation

$$p = a\cos 2\omega/\cos\omega$$

represents a parabola.

17718. (W. F. Beard, M.A.)—If a triangle circumscribes a parabola, the joins of the vertices to the points of contact of the opposite sides meet on the polar of the centroid.

17719. (Professor K. J. Sanjána, M.A.)—The normals at three points P, Q, R of a parabola meet in W and O is the orthocentre of the triangle PQR; prove that the straight line OW is trisected by the axis and has a constant projection upon it.

17720. (H. D. Drury, M.A.)—A quadrilateral is inscribed in a circle, the two pairs of opposite sides are produced to meet, their points of intersection are joined to the middle points of the two remaining sides, and the joins so formed cut the opposite sides of the quadrilateral; prove that the four points so found are the corners of a parallelogram whose sides are parallel to the diagonals of the quadrilateral.

17721. (W. N. Bailey.)—The base BC and the vertical angle of a triangle ABC are given. On AB, AC, squares ABKL, ACMN are described exterior to the triangle. Show that KL and MN intersect on a fixed circle, and that the external centre of similitude of this circle and the circum-circle of the triangle is the pole of BC with respect to the circum-circle.

17722. (V. V. S. Narayan.)—Construct a triangle ABC being given the angle A, the side AB, and the distance of the middle point of AC from the Symmedian point of the triangle.

17723. (Col. J. H. S. Murray, R.E.)—To draw a circle, touching a given line AB in a given point X, which with a given circle may have a common tangent of length l.

17724. (Professor J. C. Swaminarayan, M.A.)—If

$$\frac{\sin(x-a)}{\sin(b+c-2a)} = \frac{\sin(x-b)}{\sin(c+a-2b)},$$

prove that each of the given ratios is equal to

$$\frac{\sin(x-c)}{\sin(a+b-2c)}$$

and $$\tan x = \frac{\sin(b+c-a)+\sin(c+a-b)+\sin(a+b-c)}{\cos(b+c-a)+\cos(c+a-b)+\cos(a+b-c)}.$$

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13504. (George Heppel, M.A.)—Show that if any two of the following four fractions are equal, all four are equal:—

$$\frac{\sin(\theta+\alpha)\sin(\beta+\gamma)}{\sin\gamma\sin(\alpha+\beta)},\quad \frac{\sin(\theta-\beta)\sin(\alpha+\delta)}{\sin\delta\sin(\alpha+\beta)},$$
$$\frac{\sin(\theta+\gamma)\sin(\alpha+\delta)}{\sin\alpha\sin(\gamma+\delta)},\quad \frac{\sin(\theta-\delta)\sin(\beta+\gamma)}{\sin\beta\sin(\gamma+\delta)}.$$

13518. (The late Professor Sylvester. January 1897.)—If N is any even number, and $\lambda, \mu, \nu, \dots, \omega$, are all the prime numbers greater than $\frac{1}{4}$N and less than $\frac{3}{4}$N (excluding $\frac{1}{2}$N when it is a prime), show that the number of ways of composing N with two unequal primes is the coefficient of x^N in $\left(\frac{1}{1-x^\lambda}+\frac{1}{1-x^\mu}+\frac{1}{1-x^\nu}+\dots+\frac{1}{1-x^\omega}\right)$ divided by $r(r-1)\theta^{r-2}$, when r is an integer not less than 2, and θ is the number of the primes $\lambda, \mu, \nu, \dots, \omega$.

13670. (Rev. W. Allen Whitworth, M.A.)—Within a closed figure S, n points are taken at random, and are marked $P_1, P_2, \dots, P_n$ in ascending order of their distances from any fixed point O. With O as centre of similitude, n figures $S_1, S_2, \dots, S_n$ are drawn similar and similarly situated to S, passing respectively through $P_1, P_2, \dots, P_n$. Show that the expectation of the area S_r is to the area of S as r to $n+1$.

13804 & 13909 (which are identical). (H. W. Curjel, M.A.)—Find the maximum number of circles of given radius which can be placed in a given ellipse.

13814. (W. J. C. Miller, B.A.)—Eliminate ϕ from the equations

$$\frac{\cos\phi - e\cos 2\phi}{x} = \frac{\sin\phi - e\sin 2\phi}{y} = \frac{(1-e\cos\phi)^2}{z}.$$

What does the resulting equation become in the particular case when $e = 1$?

13835. (C. Bickerdike.)—In Tait's *Dynamics*, new ed., p. 141, it is proved that, if two particles be projected at different times in a circular tube of small bore with the same velocity, the line joining the particles will move on another circle. Prove the theorem from statical principles.

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The following papers were communicated:—

"On the Rational Solutions of the Equation $x^3+y^3+z^3=0$ in Quadratic Fields": Prof. W. Burnside.

"On Orthoptic and Isoptic Loci of Plane Curves": Prof. H. Hilton and Miss R. E. Colomb.

"On the Roots of the Riemann-Zeta Function": Mr. G. H. Hardy.

"Normal Coordinates in Dynamics": Dr. T. J. I'A. Bromwich.

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CONTENTS.

	Page
Leader: Women and Marriage	217
Notes	218
No Education Bill—Cavendish Academies—The Registration Council—The Workers' Educational Association—The *Round Table*—The Need for Frankness—Careers for Girls—The N.U.T. Conference—The N.U.T. and Women's Suffrage—Graduation and Military Training—The Training of Character—Inadequate Buildings—Oxford University Co-operative Stores—Printers' Readers—The Local Taxation Report—"Its Place"—The Civil Service Commission—Secondary Schools—Pensions for Secondary Teachers.	
Summary of the Month	222
Careers for Girls. I: Women's Work. By Janet E. Courtney	223
The Workers' Educational Association. By Albert Mansbridge	225
Compulsory Medical Treatment. By C. A. Parker	227
The Appeal of German. By Margaret Körner	231
Poetry: A Nous Autres	232
The Lighter Side of Pedagogy	233
Correspondence	233
Current Events	233
Prize Competition	234
Sane Sex Teaching. II: In the Nursery. By Miss Helen Webb, M.B.	237
A Sure Foundation	239
The College of Preceptors:—	
Half-yearly General Meeting	240
Meeting of the Council	245
Reviews	246
A National System of Education (Whitehouse); The Corner-Stone of Education (Lyttelton); Education and the New Utilitarianism (Darroch); Dr. Montessori's Own Handbook; Overseas; Prisons and Prisoners—Some Personal Experiences, by Lady Constance Lytton and "Jane Warton," Spinster—The Composition of the Iliad (Smyth); The French Revolution (Wheeler).	
General Notices	250
Publications Received	254
Mathematics	258

The Educational Times.

WOMEN AND MARRIAGE.

The recent decision of the London Education Committee to appoint certain lady doctors to the L.C.C. medical service on condition of resignation at marriage has brought about no small discussion in the newspapers. The subject is one that needs discussion; but it is necessary to point out that the L.C.C. has not inaugurated any new policy. The standing order, passed in 1906, rules that all women appointed to the service of the Council, except teachers and others specially exempted, shall be required to resign their appointments on marriage. The debate that took place on the proposed appointment of these lady doctors was an attempt to reverse the decision of the Council. We have the authority of the Chairman of the Education Committee, who expressed his views in a letter to the *Times*, for saying that the voting was influenced by the desirability of changing the policy of the Council on the question of an individual appointment rather than on the merits of the question itself.

It seems quite probable that at no distant date the Council may reconsider the policy which it laid down some eight years ago; and in that reconsideration it will be reasonable to include the position of men in the service of the Council, doctors and others, who remain bachelors, possibly for no other reason than that the terms of their appointment include the occupying of residential quarters not arranged for married life. It is only the minority, among both men and women, who are fitted for an unmarried life. For most people married life is the best; and any regulations that interfere with this are against the interests of the nation.

The reason for the standing order of the L.C.C., which has been quoted above, is quite obvious. After marriage women are usually disabled from work for short or long periods. This causes administrative difficulty. Again, some women might try to cling to their professional work when all their energies were needed for the home. It is more convenient for administrative purposes to have a rule than to consider each case on its merits. That explains why the rule has been laid down; but we believe we are right in saying that public opinion is deciding against the reasonableness of the regulation. Compulsion is always to be regretted. Women ought to be free to decide whether they will, on marriage, resign or continue their appointment. The only excuse for compulsion is seen when women are compelled, from economic pressure, to work for the means to feed their infants, when they ought to be occupied in nursing them. But if it were made compulsory that no nursing mother should work, then, at the same time, provision must be made, if needed, by the State for the support of the mother. In no other case can compulsory resignation of appointment on marriage be justified. The regulation may be convenient, but it is harmful.

It is quite certain that a large number of women will resign their appointments on marriage; they feel that all their energies are needed to bring up a family. But no impediment should be put in the way of those women who wish to carry on their profession during marriage. The one question for the appointing body ought to be: "Is the work performed efficiently?" and not "What are the home circumstances of the officer?" The administrative inconvenience of occasional absences from duty must be accepted.

So far we have dealt with the matter from the point of view of the liberty of the individual woman; but in our opinion there are still weightier reasons why married women should not be debarred from carrying on their profession. In schools under the control of the London County Council women are not so debarred; and, we are quite sure, this absence of restriction reacts favourably on the life of the schools, though married women are probably the exception on the staff. But, speaking gener-

ally of the secondary schools throughout the country, it will be found that the married woman is rare in day schools, and almost unknown in boarding schools under public control. This state of affairs narrows the life of boarding schools. Artificiality takes the place of the natural emotions that find their outlet in an affectionate home-life. A similar narrowness may be seen in institutional schools for boys where all, or nearly all, the masters are unmarried. The Civil Service Commission recommends the maintenance of the rule that posts should be vacated on marriage. We regret this, and deem it contrary to the feeling of the times; though probably most of the holders of posts in the Civil Service would resign on marriage. But it is in schools, and especially in boarding schools, that the unnatural isolation of the sexes dwarfs educational effort. The only question for a Governing Body should be: "Is the work done well?"

We hold firmly that married women are, other things being equal, more valuable in a girls' school than their unmarried colleagues. It should be left to the woman to decide if she is able to carry on her professional duties and to look after her home at the same time. It may well be that only a few exceptional women feel strong enough to do both; but these are just the women who cannot be spared from the schools. If the professional work is neglected, the appointing body are justified in requesting resignation, but for no other reason.

NOTES.

No Education Bill.

There is no chance of the introduction of a large measure of educational reform in this session of Parliament. Ireland and Wales fill the stage for the present. At least, there is no chance of time being found for the discussion of such a bill; though it is just possible that the Government may, in order to show their intentions, introduce the new scheme inspired by Lord Haldane that they are said to have prepared. It is still more baffling and distressing to find no indications that large additional grants for secondary education will be placed on the estimates. It is money that is wanted. The Board of Education will know how to spend the money when it is granted. Even in such a comparatively trifling matter as the salaries of the inspectors, we are forced to conclude that the Board have no funds to increase the staff; for we understand that some preparatory schools have applied in vain for inspection. It is true that preparatory schools are not, according to the Board's definition, secondary schools, yet they form an integral part of educational provision, and need the help of inspection as much as any other group of schools.

Cavendish Academies.

When Mr. Pease, in a speech delivered in the House of Commons last July, referred to a large number of secondary schools as "Cavendish Academies," he was taken to have made an unwarranted attack on private schools. There may still be schools as unintelligent in their government and teaching as the one that Mr. H. G. Wells describes under this title, but no sound judgment could apply the term of contempt indiscriminately to all private schools. Mr. Pease was at once taken to task by the Association of Private Schools. It is understood that he claimed to have been entirely misrepresented, and that he would take an early opportunity of expressing his real opinion. Accordingly, in opening the new High School for Boys at Oswestry, he stated his belief that "private schools occupied an essential position in the educational scheme of the country, and long might they flourish." He said he knew one excellent private school, Wellington College. But his point was that, so long as private schools were uninspected, "parents had no guarantee that they were receiving the full value of the money they were paying for education." We call special attention to Mr. Pease's phrase, "an essential position."

The Registration Council.

During the Easter Holidays the Teachers' Registration Council was, of course, in vacation, and therefore there is nothing fresh to report for this month. But our readers may feel assured that any information issued by the Council will be authoritatively reported in these columns. But as a matter of fact there will be little to report. The conditions of registration are settled and have been cordially accepted by the whole teaching profession. The principles governing admission under temporary regulations have been laid down, and the issue of certificates will soon proceed with automatic regularity. Before long we may hope for the issue of a printed Register. In the meantime, we urge any of our readers who have not already sent in their applications to do so without further delay in accordance with the resolution passed at the last meeting of the Council of the College of Preceptors: "That in the opinion of this Council it is desirable that members of the College should apply as early as possible for admission to the Teachers' Register." Individual members may seem to get little personal benefit, but they will show their sense of the solidarity of the teaching profession.

The Workers' Educational Association.

The review of Mr. Mansbridge's book on the Workers' Educational Association, which appeared in the April number, has aroused a good deal of notice because the reviewer expressed a fear lest in some of the Branches a marked political bias should be shown. It is true that the Association has no very rigid administration, and that much freedom is left to individual Branches; but we are assured from several quarters, and on very high authority, that there is absolutely no danger in this direction. The W. E. A. has for its aim the spread of knowledge; political considerations are not allowed to influence the organization. In our opinion this movement has in it the

seeds of a vigorous life that may revivify educational institutions throughout the country. We will not go so far as to say that discipline has killed education, but there is a danger lest the formality of our school programs should squeeze the life out of the pursuit of knowledge. The W. E. A. owes its vigour to a genuine desire for knowledge—a desire that may be devitalized by overmuch discipline.

The "Round Table."

THE last issue of the *Round Table* contains a remarkable article entitled "Education and the Working Class." The writer shows a profound understanding of the educational problems that lie before the nation. It is clear that he has studied at close quarters the doings of the Workers' Educational Association, and he is convinced that it is a genuine movement, answering to the innate desire for knowledge as the interpretation of experience of life and as an antidote to the ossifying disease of middle age. Had we space we should have liked to reproduce the whole article—it does not readily lend itself to quotation. It is the spirit that inspires it, the spirit based on a keen insight into the life of the workers, that makes the article so valuable. It should be read by those who have to deal with schools. Examinations are a good thing, a necessary thing, as we believe; but, undoubtedly, many of us allow examinations to dominate the school work until all life is crushed out. The spirit that has brought the Workers' Educational Association into being is the spirit that we want to get back again into our schools. We would call our readers' attention to an article by Mr. Mansbridge that appears in this issue.

The Need for Frankness.

AT the Children's Welfare Exhibition Mr. John Russell gave two lectures on "Sex and Education." "Pretence in matters of sex," he said, "is more deadly than anything else, and it is the sacred duty of home, school, State, and Church to educate boys and girls how to be fathers and mothers of to-morrow." Again: "There should be no secrets and no reservation at home, but fearless intimacy between parent and child." These things want saying over and over again until we have rid ourselves of the cant and false modesty that so often render childhood unhappy. The young child asks questions, naturally and simply, about the origin of life. It is put off with silly answers or it is told not to ask such questions. Then the tragedy of unhealthy introspection begins and grows more serious as the years pass. The evil lies in the secrecy that is maintained. We are doing what we can in this paper to induce a more healthy attitude of thought. Last month Dr. Eric Pritchard contributed the first article in the series "Sane Sex Teaching." In this number Dr. Helen Webb writes on the Nursery. Next month Dr. Pritchard will deal with the matter as affecting boys' schools.

Careers for Girls.

THIS month begins a series of articles that will prove very helpful to mistresses, who are often called upon to advise parents or girls as to the choice of a profession or occupation. Mrs. W. L. Courtney, who has had a wide experience in the employment of women in the higher branches of commerce and in literary work, writes the introductory article to the series. Next month there will be an article from Miss Edith Morley, editor of "Women Workers in Seven Professions." Miss Morley will deal with Teaching. We have arranged for further articles from women of standing in various professions. As far as we can foresee, the series will continue for several years if we publish one only in each issue—so wide is the choice of occupation open to women. When we have dealt with the more obvious paid careers, we propose to treat of the unpaid careers in which many women are doing work of the greatest value to the country. More knowledge of openings is needed. The teaching profession yields to none in its essential interest, provided there is a vocation; but many girls become teachers, though unfitted for the work, because they do not know what else to do.

The N.U.T. Conference.

FOR the first time, we believe, in its history the National Union of Teachers has chosen as President a teacher in a secondary school. Mr. W. B. Steer is an assistant master in the Derby Municipal Secondary School. His presidential address was a stirring appeal for a more insistent demand for an improved status for teachers. His argument was that administration, inspection, and teaching are branches of one profession, and that so long as the two former branches look upon the teacher as an ill-paid drudge who can never rise, teaching will always be contemned. He advocates free passage from one branch to the other, and considers that teaching would be the best preparation both for inspectional and for administrative work. In this we concur. The want of knowledge of actual conditions of school work on the part of administrators is disastrous to harmonious working. Mr. Steer has great hopes from the action of the Registration Council, which has set up the double standard of academic qualification and aptitude for teaching. He contrasts this with the position of the Board of Education compelled to admit teachers who have given no proof of academic fitness.

The N.U.T. and Women's Suffrage.

THE Conference of the N.U.T. at Lowestoft was somewhat bitterly divided on the question of passing a vote of sympathy with the women who are struggling for political freedom. The women failed to get their motion, but they were able to block a contrary motion, and the matter is still undecided. The women gained an increase in votes, so that in a few years, perhaps, they may gain their point. Men teachers are peculiarly conservative. In the early years the Union consisted mainly of men;

they fought for and gained political influence. The power of the Union is largely based on its ability to influence Parliamentary action. Now that a majority of the members are women, it would appear reasonable that the Union should realize that if women had the vote its power would be increased. Yet the opposition was principally based on the claim that the whole question, being a political one, was outside the scope of the Union. The leaders know better: they know and can estimate the danger of a secession. But the constitution of the N.U.T. appears to allow the leaders to be overcome by the popular vote.

Graduation and Military Training.

THE proposal emanating from Cambridge that undergraduates should qualify in military training as members of the Territorial Force as a condition of obtaining the B.A. degree has aroused an interesting discussion in the newspapers. It is easy to advance specious arguments on either side. The educated man should possess a trained body and a developed soul, as well as a polished intellect. This we should all admit. There are qualities, valuable to the individual as well as to the State, which are not estimated by our present system of examinations. But it is a more doubtful matter when it is proposed practically to enlarge the examination in order to cover physical fitness. Physical fitness is of the first importance, but not every one would accept service in the Territorial Force as a proof of physical fitness, nor consider military training the best means of gaining it. Let the cobbler stick to his last, and let the University continue to issue certificates in the subjects they teach. That is their business.

The Training of Character.

TRAINING of character is a somewhat baffling problem. Every one is agreed that "character" taken in the widest sense is the principal aim of all education, whether of school or of life; but when we ask how character is to be trained, the answer is often vague and unsatisfying. It is sometimes said that schools that make a great talk about the training of character do so to hide the emptiness of the other sides of their work. The best answer to the question how character may be developed and strengthened in public-school life that has yet been given by a schoolmaster is, in our opinion, to be found in a book recently published by the head master of Eton. We give in another column a full review of Mr. Lyttelton's book, to which we would call our readers' attention. A great deal of valuable help may be gleaned from the early chapters in solving an ever present and difficult problem, how to bring out strength of character and to encourage control of self.

Inadequate Buildings.

WE have often heard objection raised to the inspection of schools by the Board of Education on the ground that an almost impossible standard in building and equipment would be demanded. The fear is exaggerated. The Board have no hard-and-fast regulations referring to existing buildings. For the comfort of some of our readers we quote the conditions of a number of schools in Manchester, as reported in the papers. It is said that there are some forty schools, many of them built before the Act of 1870, which have been condemned by the Board of Education, and yet which continue to draw grants from the Elementary Department. We know of a secondary school that was condemned more than ten years ago, and which still flourishes and draws its annual grant, while dilatory committees discuss the plans of a new school. It is quite reasonable that the Board should use all its influence to improve the equipment of schools and to encourage the improvements that the growth of hygiene has made imperative. But it is misleading to talk as if the Board issued a peremptory ukase, and did not allow time for the school authorities to consider their action.

Oxford University Co-operative Stores.

LITTLE is known among the middle classes of the Co-operative movement which has a widespread influence among the working classes. Members of the University of Oxford are to have an opportunity of studying the system at first hand: for the Oxford University Co-operative Society has been formed and has opened a shop in the High for the sale of groceries, athletic goods, smokers' requisites, and stationery. The idea is excellent and we wish it all success, and hope it will not arouse much jealousy among the trading classes in the city. The poetical member of our staff deals with the humorous side of the project in another column. The main ideas of the promoters are to teach Oxford men the ideals, possibilities, and achievements of co-operation, to instil business-like habits, and, to some small extent, to lessen the cost of living. The Society will be managed by a committee consisting of five senior members, of whom Canon Scott Holland is one, and twenty junior members. Mr. E. G. Underwood is acting as honorary secretary.

Printers' Readers.

THE Annual Dinner of the Readers' Pension Committee, which took place last month, reminds us of the necessary and valuable work of a body of men who keep very much in the background and who are not in the habit of giving way to self-advertisement. "It is mainly to the work of the professional printer's reader," says the *Times*, "that we owe the singularly high standard of correctness in modern typography." We can endorse the words. A reader has a large fund of patience, and powers of observation trained to notice small points: he possesses a remarkably wide and correct knowledge, and acquires an extraordinary skill. During the last two years our attention has been twice drawn to what are called "misprints." In both cases the writer, and not the printer's reader, was at fault. We believe that few papers maintain a higher standard of accuracy than *The Educational*

Times, and we are glad to take the opportunity of expressing the gratitude owed by our readers to the printer's reader.

The Local Taxation Report.

The Final Report of the Departmental Committee on Local Taxation is issued at the same moment as the announcement of a large net surplus in the Imperial Revenue for the year. There is money to spare, and the Report will no doubt serve as a guide in the spending of it. With regard to elementary education, the Committee recommend that the present grants be abolished, and that a single grant to each Education Authority, based on the average attendance in the area, be substituted. The estimated increase will be nearly two and a-half millions. With regard to higher education, the recommendation is that the grants should continue as at present, "but that the residue grant be replaced by a grant of approximately equal amount distributed in proportion to the net expenditure on higher education of the several Local Education Authorities concerned." This grant is estimated to work out at a few hundreds less than it is at present. It is quite clear, therefore, that the Departmental Committee have not been influenced by Lord Haldane's desire to pour out national money on secondary schools and Universities.

"Its Place."

At the recent meeting of the Herefordshire County Council the matter of the Teachers' Strike came up on a report from the Education Committee indicating increases in salaries amounting to close upon £5,000 for the year. Colonel Decie explained to the Council that the Committee had been powerless because "the teachers were supported by a majority of the managers of non-provided schools, and by the Board of Education." If a settlement had not been reached, the county would have lost £5,000 or £6,000 immediately in grants, and more in the future. In Colonel Decie's opinion the Committee was not responsible for giving in to the claims of the teachers. "If," he said (we quote the special correspondent of the *Manchester Guardian*), "we had received the support of the managers and the Board of Education, we should have been able to keep the National Union of Teachers in its place." It seems to us that the place of the N.U.T. is exactly where that body stood—that is to say, in front of the movement for gaining increased pecuniary consideration for the valuable work of teaching. It is fortunate that the Board are more clear-sighted than the Councillors of Hereford.

The Civil Service Commission.

The Civil Service Report has been issued and will no doubt indicate the way to several reforms. For the higher branches of work the Commissioners look upon a University training as a valuable asset; but they recommend at the same time that greater facilities should be provided for the transference of promising pupils from the primary schools to the secondary, and thence to the Universities. They are, on the whole, opposed to patronage appointments, and where these are to remain they suggest certain safeguards in the public interest. The first-grade clerks in the Board of Education, known as examiners, are at present appointed by patronage. It is recommended that in future, with certain special exceptions, the administrative staff shall be recruited by examination. Inspectors of the Board of Education are to be appointed by a Special Appointments Committee, after the advertisement of the vacancy. The Committee will submit two or three names of the most eligible candidates to the Minister in charge of the Department in which is the vacancy. The Commissioners also advise a closer connexion between the educational systems of the country and the Civil Service examinations.

Secondary Schools.

The Report of the Board of Education for the year 1912–13 has just been issued. There are 898 secondary schools eligible for grants, an increase of 13 over the figures of the preceding year. In addition, there are 110 other schools recognized as efficient, an increase of 9. These figures are disquieting in reference to the proposals that have been made for a national system of education. There are thousands of secondary schools of which the Board has no official knowledge. During the year under review the Board held 227 inspections. If, with the present staff of between thirty and forty Inspectors (including women) this is all the Board can do, it is quite clear that the staff must be very largely increased. With regard to the passage of pupils from elementary to secondary schools, the Board again emphasize "the necessity of early entry before—and, if possible, substantially before—the age of twelve." The Regulations for secondary schools remain as before, with the two alterations that have been already announced, dealing with the additional £1 for pupils between the ages of fifteen and eighteen, and with an increased grant to small schools.

Pensions for Secondary Teachers.

The Report of the Departmental Committee on the Superannuation of Teachers was issued just as we were going to press. The Committee recommend a system similar to that which has been established in the Federated Universities. The teachers and employers would between them contribute 10 per cent. on the salary of the teacher and, in addition, the State would make a disablement allowance.

The School Peace League, whose Committee is representative of eight educational associations, including the National Union of Teachers, the London Teachers' Association, the Private Schools Association, and the Associations of Head Mistresses, Assistant Masters, and University Women Teachers, together with the Parents' National Educational Union and the Sunday School Union, reminds us that Peace Day is May 18—a day upon which may be brought before the children in the schools, without trenching upon any political question, those aspects of modern international life which tend towards a wider sympathy for and comprehension of other nations, thus making for what Lord Haldane has called "higher nationality," and which, rightly understood, lie at the basis of the maintenance of peace in the world.

SUMMARY OF THE MONTH.

The Lowestoft Conference.

We give below two important resolutions passed at the recent Conference of the National Union of Teachers. The first deals with the external degree of the London University, and the second proposes a revolution in the finance of secondary education. The resolutions are :—

(1) That this Conference instructs the Executive to do everything possible to prevent the external degree being done away with in the reconstruction of the London University which is going on at present.

(2) That this Conference regrets that many children capable of benefiting by an education beyond that given in a primary school are debarred from receiving such education by reason of the incompleteness of the present educational system, and is of opinion that failure to provide facilities for developing the powers of those capable of profiting by a fuller and more complete education results in a distinct national loss. Conference is therefore of opinion that the time has arrived when (*a*) education in all secondary schools in receipt of Government grants should be free; (*b*) maintenance scholarships should be established to enable children of poor parents to continue their education in these secondary schools; (*c*) State scholarships should be established to enable these children to proceed to a technical college or University.

Corporal Punishment.

The Conference also passed a resolution reaffirming the right of the certificated teacher to inflict corporal punishment. Referring to this, a writer in the *Manchester Guardian* gives the following interesting information about punishment in Russia:

The National Union of Teachers, in solemn conclave at Lowestoft, has been talking about the common-law right of every teacher to administer corporal punishment. One would like to see a barbarous Russian reading that announcement. He would boil with indignation and talk about the unbridled cruelty of the English. Caning is unknown in Russian schools, and the law does not permit it even in reformatories. The whole question was discussed in the Council of Empire a few years ago, when a Bill about reformatories was before the House. A courageous member pointed out that it was found absolutely necessary to employ corporal punishment in English reformatories, and that it was advisable to allow it in Russia. But numbers of members rose and denounced the proposal. "It may be a good thing to beat English boys," remarked one old gentleman, "but the practice is contrary to Russian sentiment and cannot be tolerated." The House applauded the speech, and refused absolutely to sanction corporal punishment in reformatories.

Medical Education.

The Royal Colleges of Physicians and Surgeons have decided to add Wellingborough School and Wrexham County School to the list of institutions recognized by the Examining Board in England for instruction in chemistry and physics and Bradford Technical College to the list recognized for instruction in biology. The Royal Naval Hospital, Chatham, has also been recognized by the Board for the course of fever hospital practice required for the Diploma in Public Health, which is granted jointly by the two Royal Colleges.

Relief for the Rates.

Mr. Pease received a deputation from the London County Council on April 2. The deputation wished to discuss the high proportionate cost of education in London, and to ask for further State grants. Mr. Pease, in reply, quite admitted that the Government grant was inadequate.

It is a great satisfaction to me [he proceeded] to be able to say that the Government have decided to give relief at an early moment to local rates, and I shall be very much disappointed if the Chancellor of the Exchequer, in his forthcoming Government statement, does not make some definite statement as to the money he will give in relief of educational rates and for the support of educational work in the future. I cannot, of course, anticipate anything that my colleague may say on that particular occasion. London suffers from its high loan charges. I have informed Parliament that I believe that the grant system should be changed, so that a substantial proportion of loan charges ought to be contributed to by the State, and if that comes about London will be one of the great authorities which will most participate in that.

The Proposed University at Nottingham.

On April 17 Mr. Pease received a deputation from educationists in Nottingham, who urged that the University College in that town should be raised to the status of a University. Mr. Pease said he would welcome anything that would justify him in taking the step that they asked him to take. He could not commit the Government at the present moment to increase the amount of grant which the college was at present receiving, but he hoped that before very long he might have additional sums of money granted from the Exchequer which would be shared not only by the Local Education Authorities, but by the Universities and individuals representing the higher education in the country.

The Education of Mothers.

A deputation from the National Society of Day Nurseries and other bodies was received by Mr. Pease and Mr. Samuel on April 10. Both Ministers sympathized with the objects of the deputation. Mr. Pease said he had come to the conclusion that many of the infant educational departments were not quite suited to the children, and that they had to try to arrange that the physical condition of the children in their earlier years should receive more attention than it had done in the past; otherwise the money was going to be wasted which was subsequently spent on education. The Government recognized that something must be done with a view to educating the mothers in subjects such as hygiene in the upbringing of children.

Holidays Abroad.

Under the leadership of Mr. A. H. Hope, one of the masters of Manchester Grammar School, a party of fifty-two scouts belonging to the school left the Central Station at noon on April 9 for London. They had assembled at the school and they marched to the station. From London the boys proceeded to Havre, and, arriving there, they did some tramping and river journeys. In camp they cooked their own meals twice a day, getting their midday meal at an hotel.

A party of twenty-seven boys and three masters from King's College School, Wimbledon, left Charing Cross on April 8, by the afternoon boat train, on an educational visit to Germany. This is a fourth of a series of visits made by agreement with German public schools and organized by Mr. A. W. Koch, the Senior Modern Language Master. On two occasions return visits have been made to Wimbledon by German schoolboys.

Agricultural Education in Surrey.

The Surrey Education Committee propose to make provision in the estimates for 1914–15 for the appointment of a General Organizer of Agricultural Education, as suggested by the Joint Advisory Council, at a salary of £350 per annum, rising by annual increments of £25 to a maximum of £450 per annum. Under the new grant regulations of the Board of Agriculture, 70 per cent. of the salary of the General Organizer will be met by grant from the Development Fund, and the Committee are informed by the Board that a scheme for the co-ordination of all grants for the purpose of Agricultural Education is under consideration, and that this scheme may prove more satisfactory than the present arrangement under which the new grants are confined to new or additional work.

College for Working Women.

Mr. Cuthbert Grundy, of Blackpool, who, with his brother, Mr. T. C. Grundy, recently gave a recreation ground to Cheshunt, has presented to the Browning Settlement a group of seven houses in the centre of Cheshunt parish. It has been decided to use the property as a college for working women, and Miss M. B. Taylor, of Stanford, Rusholme, has been appointed the first Principal.

The Late Miss Strong.

We regret, says the *Times*, to announce the death, which occurred at Wendover on April 8, of Miss Lilla B. Strong, who was among the most notable educators of girls of her

time. Miss Strong was the daughter of Colonel Clement Strong, of the Coldstream Guards. She came early under the influence of Miss Beale, of Cheltenham, to whom, no doubt, she owed much of the inspiration of her life. Like Miss Beale, she believed that all real education must be based on religion. At the age of twenty she went out to South Africa, under Bishop Webb, and worked in schools at Bloemfontein, Kimberley, and Grahamstown. In 1891 she became Head Mistress of the Church of England High School, 6 Upper Baker Street, N.W. It was here that her first important work as an educationist was done. In January, 1905, at the request of the Bishop of Lahore (now Bishop of Calcutta and Metropolitan of India), she became Head Mistress of the Auckland House School, Simla, which had just been taken over by the Diocesan Board. In three years she accomplished much that had appeared impossible, and the Punjab Government made a large financial grant to the school in order to enable her to carry out the reforms she saw to be necessary. But the strain of the work left its mark on her constitution. Miss Strong came home from India in 1908. She undertook no new post, but showed a deep and active interest in social questions relating to women. In the autumn of 1911 she developed a serious illness, and, though for a time she made a partial recovery, she never regained her former health. None of her pupils will forget her teaching in music, literature, and Scripture; but she cared more for the formation of character than for intellectual attainments.

Empire Day.

The Education Committee of the London County Council have had under consideration the desirability of arranging for Empire Day to be celebrated in London secondary schools. They are of opinion that it should be suggested to the head teachers of the schools maintained or aided by the Council that Empire Day should be celebrated. They recommend:—"That it be suggested to the governors of all secondary schools in London aided by the Council and to the head masters and head mistresses of the Council secondary schools, that Empire Day should be celebrated in the schools on May 22, 1914, as in the case of elementary schools; that a copy of the circular issued to elementary schools on the subject be forwarded for their information; that it be also suggested that a half-holiday should be given in the afternoon of the day of the celebration; and that, as regards the Council's secondary schools, authority for such half-holiday be hereby granted; and that the Council be recommended accordingly."

Appointments.

The Education Committee of Surrey have appointed Mr. G. A. Walker, of King's College School, Wimbledon, as a member of the Consultative Board, in the place of Mr. G. T. Hankin, resigned.

Mr. Percy Coleman, of the Northern Polytechnic Institute, Holloway, has been appointed Adviser in Technical Education and Secretary to the National Board for Technical Education in the Union of South Africa.

Mr. Charles K. Webster, M.A., Fellow of King's College, Cambridge, has been appointed to the vacant Chair of Modern History at Liverpool University.

The Registration Council.

The Register of Teachers continues to grow, although the Easter vacation has caused some falling off in the number of applications. The certificates are now being prepared and sent out as rapidly as possible. The National Union of Teachers has decided to issue a note to all its members advising them to register without delay. Already some of the most prominent of these have applied for registration. Among them are Mr. W. B. Steer, President; Mr. C. W. Crook, B.A., B.Sc., Vice-President; Mr. A. W. Dakers, B.A., Ex-President; Mr. W. D. Bentliff, Miss Isabel Cleghorn, M.A., Mr. Allen Croft, Mr. George Sharples, M.A., former Presidents; Sir James Yoxall, M.P., Secretary and a former President; and several members of the Executive.

CAREERS FOR GIRLS.

I.—WOMEN'S WORK.

By Janet E. Courtney.

There are two points of view from which the professional work of women should be regarded—the sociological and the economic—for, though sociological and economic considerations often overlap, there is no clear thinking unless they are distinguished. To put the matter in a more concrete form, when we are discussing whether women should work and how they should work, we must inquire first how their work will affect the wellbeing both of society and of themselves; and secondly, what effect it will have upon the general division of wealth, meaning thereby the total sum of value created by labour.

Now the value of work as work upon the character and outlook of the worker can hardly be any longer in dispute. It needs no Socialist prophet of the twentieth century to teach us the sin of unproductiveness, for were we not long ago taught by Holy Writ that "if a man will not work neither shall he eat"? And since in all philosophical thinking the word "man" means human being, to deny to women their share in the duty of work is to deny them humanity. It would avail us nothing to fall back upon the Victorian ideal of wifehood and motherhood, or "work within the home," as the sole career suitable to a woman. The present distribution of population in the United Kingdom, and the discrepancy between the sexes, makes wifehood impossible to something like a million women, who must, therefore, either become an unproductive burden upon the community, or a productive body of citizen workers. There can be no question which of these alternatives is the more desirable from the point of view of society.

Nor can it be any less in the interests of the women themselves that they should adopt some form of professional activity. No one who contrasts the active capable bachelor women of the day with the old maids of the mid-Victorian Age will deny that women are happier and healthier for having a variety of interests and occupations. The only question is whether their work should be unpaid and voluntary, or paid and professional. For a great many women this question admits of only one answer: they must either work for pay or starve. But for a great many others it may very well be answered by the consideration that the professional woman working for pay is bound for economic reasons to keep her work up to a standard that amateur work only too often fails to reach. Moreover, though no one would for a moment deny the vast importance of the unpaid public and philanthropic work undertaken by many able women, it may be pointed out that in a good many cases the ability which they bring to bear upon public affairs has been trained by previous professional work. All honour to those who can reach and maintain an equally high standard of efficiency without such training; but for the weaker sisters amongst us—and small blame to them—there is no such school of efficiency as the necessity of justifying one's existence and keeping one's job.

This brings us to certain important economic considerations concerning the work of women, which are the subject of much controversy. First, are women to work only when they must, or may those who have some other means of subsistence compete with those who have not? This is a point upon which a great many "working"—*i.e.* professional—women feel very strongly. It is not infrequently urged by women journalists, stenographers, and members of other somewhat congested professions, that these careers ought not to be adopted by women whose fathers can provide for them, still less by those who have husbands. But however much one may sympathize with the hard lot of those who have entered an overcrowded field of work, it must never be forgotten that to reserve any profession for the women who cannot afford to be thrown out is at once either to degrade that profession to the level of a charity or to tempt the em-

ployer, who is neither charitable nor philanthropic, to cut down wages to the lowest subsistence level. There is no such safeguard against the imposition of hard conditions as the presence in the profession of women who can afford to stand out for better treatment. The fact that they are willing to become clerks and accountants and newspaper reporters, not to mention the more obviously interesting liberal professions, helps all clerks, accountants, and journalists to secure better terms, because it raises the status of the woman worker in the eyes of the employer. She is no longer merely a "paid help," or a "business girl"; she is an independent woman with whom he must make terms.

The question of the work of married women is a little more difficult. Hitherto it has been almost the unvarying practice on the part of the State and other public bodies to require women to resign appointments on marriage. But quite apart from the stigma which, in the opinion of many women, this casts upon the married state, it is by no means certain that the State and the public bodies concerned do not thereby suffer considerable loss. Marriage should be to a woman not a loss but a gain in efficiency, and why should the employer be compelled to lose his employée just when she is likely to increase in value? Educational Authorities have begun to recognize this, and marriage is no longer regarded as a circumstance unfitting a woman to have the charge of young children. But in other professions why cannot the question be left to the woman herself to decide? It is not likely that a married woman comfortably off is going deliberately to overwork herself for the sake of competing with her poorer sisters. If she finds that she can combine professional work with home duties, why should other people decide for her that she cannot? If she is embarking upon the rearing of a family, that circumstance will of itself withdraw her temporarily, or permanently, from professional life; but why not wait till it does before insisting upon her withdrawal? Moreover, why ignore the fact that in England, where the custom of the *dot* does not prevail, many happy marriages might be rendered possible, if the wife as well as the husband could put something into the common purse, and many marriages would be rendered much happier if the wife's independent earnings obliged her husband to regard her as a partner to be consulted rather than as a dependent who must obey.

One thing, however, is clear if the evil of assisted earnings and their effect on wages is to be avoided. Every woman, whether married or unmarried, whether possessed of independent means or entirely dependent on her work, must demand for that work a wage sufficient to maintain her in decent comfort. There must be no undercutting of salaries as between woman and woman. What are we to say of the still more vexed question of undercutting as between women and men? The present Lord Chancellor, well known to be sympathetic towards women's work and aspirations, said not long ago before a Royal Commission that on the question whether women should be paid the same wages as men for the same work, he had never been able to make up his mind. Many of us will sympathize with him. If men are displaced by women because the women are cheaper, it is hard on the men; if women are driven out of professions because, where both must be paid the same, men are preferred, it is hard on the women. It seems sometimes a hopeless dilemma from which there is no escape, unless it be by the choice of a career which will minimize as much as possible competition between the sexes.

This will be thought by some a hard saying, but it does seem worthy of the consideration of those who have to direct the training of girls for professional work whether the time has not come to look around and to consider the possibility of breaking fresh ground in the choice of a career. No doubt the learned professions will always attract the scholarly and University trained women; but they must face the fact that if they enter medicine, or if they ultimately succeed in entering the law, which has hitherto been closed to them, they are entering professions in which competition is already keen and openings are limited. There are some departments of medicine, for which women have such special qualifications that male competition need not deter them, and no doubt there will always be a steady and probably growing demand for the services of medical women as Inspectors under Government as well as in private practice. The law is a different matter. No advocate of women's employment wishes to deter an able woman from entering any profession she has a mind to enter; but the number of briefless barristers, and the army of competing solicitors, may well give her pause.

There are, however, two great and growing professions which absorb between them something like half the educated women workers. They are the teaching and the nursing professions. Here there is no need to fear male competition, for women's claims to be regarded as at least the equals of men, and in the matter of nursing immensely their superiors, are incontestable. Given the genuine vocation—and both these professions do need a vocation—any girl may wisely be advised to fit herself for teaching or nursing. The supply of really capable recruits to both professions never exceeds the demand, though the number of women teachers at the time of the census of 1911 ran up to 187,283, and the midwives and nurses numbered 83,662. It is different with the class which, next to teaching, is the most numerous—namely, commercial or business clerks—who in 1911 were 117,057, or, including the 31,558 employed under Government, 148,615. Here it does often seem as if supply exceeded demand, but this is largely due to the great need of differentiation and classification amongst business women. There are many whose qualifications are so slight that they are not worth even the exiguous and uncertain salaries which they succeed in obtaining, and which they never would obtain if employers were better instructed as to what they might hope to get in the way of women accountants and shorthand typists, if they applied to the right quarter and were prepared to pay a good price. They would be astonished to find how much they saved, even if they increased their pay-roll some 50 per cent., by the substitution of intelligent efficient work for the previous chronicle of errors.

In addition to these large professions there are the smaller ones employing each their few thousands, such as the dramatic profession with 9171 members, the profession of journalism of uncertain extent but probably not over 2,000, design and decorative work, photography, gardening, dressmaking, millinery, and shop-keeping in all its branches. The great need with regard to all these professions is fuller information as to prospects and means of training, information which by the time this series of articles is concluded may perhaps be in the possession of the readers of this journal. One's own personal experience generally shows one that women tumble into different kinds of employment in the most haphazard fashion. Some friend says: "Can you tell me of any capable woman who could do so and so?" and the friend replies: "Oh yes, there is Miss B——. I don't think she ever did that kind of work before, but I have no doubt she could soon learn." And for want of a better equipped candidate, Miss B—— is engaged; but so far from proving a failure, she often proves a success, which is another proof—if proof were needed—of the almost limitless extent of feminine adaptability.

It is this adaptability which is woman's great asset, and it is to be hoped that no system of professional training will be encouraged which tends to deprive her of it. This is not to say that she should not have professional training; but she should not be encouraged to look upon professions as existing in water-tight compartments, with no possibility of passing from one to the other. It is very bad for her to get too soon into ruts, and all educationists should severely discourage the early withdrawal of girls from general education with a view to subjecting them to "special" training. Woman, whether she likes it or not, cannot escape the hard fact that she is a late-comer into an industrial and professional world already fairly well filled, and in some quarters overfilled, with male workers. She has got to find a place for herself, and if one part of the house says "standing room only," she must try another and yet another until ultimately

a seat is found. But she would save herself much weary searching and bitterness of spirit if she informed herself to begin with of the number of seats in each part and the probable proportion of vacancies—in other words, if she consulted those who have actual inner knowledge of each profession because they have practised it.

That is real knowledge. It is quite a different thing from even the "expert" information of employment bureaux, valuable as these are in their proper sphere. But if those who run them were themselves engaged in the professions to which they offer recruits, they would not so often try to fit square pegs into round holes as they do at present. So much in women's work depends on the personal equation; so often it matters infinitely more what a girl is like than what she knows. Consequently one or two experienced professional women with a keen eye for character would be worth more than all the Boards of Examiners rolled into one in selecting candidates for employment. Some day the Government and the learned bodies will make that discovery, and a good many worthy gentlemen will lose comfortable salaries.

THE WORKERS' EDUCATIONAL ASSOCIATION.

By Albert Mansbridge.

> "The Tutorial Classes organized by Universities in connexion with the Workers' Educational Association continue to develop along satisfactory lines. . . . The instruction must aim, within the limits of the ground covered, at the standard of University work in Honours. . . . Nine classes are taken in English Literature, a subject to the study of which this movement may be expected to contribute a fresh element of vitality. . . . One of the most hopeful features for the future is the growing interest in the type of work that is promoted by the Workers' Educational Association for Wales (Undeb Addysgol Gweithwyr Cymru)," Wales (including Monmouthshire). — Board of Education Report issued April 18, 1914.

The "educational project "known as the Workers' Educational Association cannot easily be understood by those who have not had intimate acquaintance with it. After all, it is still an experiment, and probably will do its best work whilst it remains so. That it is regarded as a notable experiment is certain. Efficiently worked it could hardly be otherwise, for it is an attempt to unite, by means of the power and spirit of education, men and women of different experience and opposing views. The reason, however, why it has attracted so much attention is because it has been successful in the direct promotion of study among the workers of England.

The extracts from the Report of the Board of Education, issued a few days ago, indicate clearly that the official view of the work is frankly appreciative. As is well known, its work has figured largely in Blue books and, what is more significant, in the speeches of Conservative, Liberal, and Labour members of the House of Commons. The first of these appreciative speeches was made by Mr. Runciman in 1910, his remarks calling forth an expression of satisfaction from Sir William Anson. Perhaps the most searching statements concerning the spirit and method of its general work are to be found in the careful estimates of two German observers—Dr. Werner Picht and Anton Sandhagen—although the March 1914 issue of the *Round Table* * contains a remarkable philosophic discussion of its inner meaning, which has already attracted much attention in England, as it will in the Dominions, where similar work is now being carried out. The Board of Education Report, signed by Mr. J. W. Headlam and Prof. L. T. Hobhouse, † supplies the considered judgment of experts, whilst lengthy commendation of its activity, and proposals for assisting such activity, appear in the recent Report of the Royal Commission on University Education in London.

This unanimous approval, after careful investigation, makes it clear that the interesting statement in the April issue of *The Educational Times* was obviously based upon incomplete, though perhaps intimate, sources of information. Before the statement can be regarded as adequate, something must be taken away and much added, while some statements must be definitely traversed. The incompleteness of the statement becomes obvious when, after the confident assertion that "the machinery of the Workers' Educational Association may be described in a few sentences," such machinery is hardly referred to. The description so concisely given in one paragraph concerns itself almost entirely with the description of the committees appointed (at the request of the Association) to deal with Tutorial Classes by the Senates, or equivalent bodies, of Universities. Perhaps it may be as well to say here, although we should not attempt to describe the Workers' Educational Association in a few sentences, that the Association consists of two thousand five hundred federated bodies and some ten thousand individual members organized in and through some two hundred branches and eight districts. Branch Councils have representation upon District Councils, and District Councils, together with affiliated national bodies, upon the Central Council, which governs the whole of the Association, subject to the decisions of the Annual General Meeting. There are now Associations in each of the states of the Australian Commonwealth, and the beginnings of organization in Canada.

Branches certainly "have a large measure of autonomy," but it is also true that, before their constitutions are adopted finally, branches must submit them for the approval of the Central Council, and every constitution must include a clause forbidding "party-political or sectarian action." There has, to the knowledge of its General Secretary, never been a breach of these clauses. If there had been, and no notice had been taken of it, then the Association would have been guilty of dishonour, for it invites, and retains, the membership of politicians like Mr. Balfour, Lord Haldane, and Will Crooks, and of ecclesiastics like the Archbishop of Canterbury, Dr. Campbell Morgan, and Dr. Estlin Carpenter. Moreover, its working-class members (who constitute the bulk of the Association) are drawn alike from the entire ranks of labour, irrespective of party politics or sect. In order to preserve its integrity, the Association has by custom developed the self-denying ordinance of "no Parliamentary action." Some may deem this unnecessary caution, but the Association has always held that it is best for its members to conduct their parliamentary action through other bodies. It can give them information to act upon and to help to endow them with the guiding power of considered judgment. The claim made on behalf of the Association is "that being an educational movement it is both non-political and unsectarian." No more damaging statement than that made by last month's writer that the Workers' Educationial Association "is rapidly becoming a political movement" could possibly be made concerning it. It is none the less damaging because it is elusive. "Rapidly becoming" is the criticism, not "it is already." There might be endless controversy as to whether any movement can possibly avoid being political, for where is the boundary of politics? But if the avoidance of parliamentary action, of partisan opinion, of interference in sectional disputes is "non-political," then the Association is that, always has been that, and must always be, or it will "seal its own fate" in dishonour.

The innuendo of the sentence is plain. The Workers' Educational Association depends largely for support upon Local Education Authorities and the Board of Education. It needs little imagination to picture this sentence being quoted as a conclusive argument against a financial grant. There are many yet who fatuously believe that working-class education is, and must be, socialism. They will snatch at such authoritative proof as an article in this paper affords. The Board of Education dare not give one penny to a "political body," and is notoriously not slow to protect its interests in these directions. But as we have shown, both Liberal ministers and Conservative ex-ministers rejoice in the support that the Board gives to the Tutorial Class movement. The case of the writer in this respect is made to hang upon the enforced resignation of Dr. Michael Sadler from the office of President of the Leeds Branch, and also upon "a naïve attempt to limit the teacher's freedom" on the part of a certain class.

* This has been reprinted, and can be obtained from the Workers' Educational Association, 14 Red Lion Square, 4d. post free.

† This appears as an appendix in "University Tutorial Classes," (Longmans, Green & Co. 2s. 6d. net.)

The statement relating to the resignation of Dr. Sadler comes, because of its incomplete nature, dangerously near being a misstatement. The action of the Leeds Branch in calling for the resignation of Dr. Sadler from the office of President is justified as an emphatic protest against his failure to preserve the essential neutrality of the University. There can be no doubt that the University of Leeds did become involved in the strike. In a letter to the Parliamentary Committee of the Trade Union Congress Dr. Sadler pointed out that the University Authorities did all in their power to bring about an honourable settlement of the dispute. This is the peace-making action which a University may powerfully undertake. Any possibility, however, of such action being effective was rendered remote, if not impossible, when, to quote Dr. Sadler in the *Economic Journal:* "In the suddenness of the emergency the University as a corporate body could not be consulted. Its executive officers (the Pro-Chancellor and the Vice-Chancellor, together with the Pro-Vice-Chancellor), after careful deliberation, took action, believing that the failure of certain municipal services would have consequences disastrous to all classes of the community. They communicated the request of the City Authorities to members of the University, a considerable number of whom, seniors and juniors, volunteered immediately, like many other citizens, for skilled and other work in the gas and electrical departments of the city."

It is not possible, of course, for the matter to be discussed fully here, but the decision of the executive officers of the University to depart from powerful action for the preservation of peace, however hopeless such peace-making action may at the moment have appeared or however vital the immediate interests of Leeds, has introduced a precedent which, unless quickly repudiated (as in some quarters it has already been), would break for ever that tradition of impartiality which has been the theory and practice of English Universities. The consequences of this act will make themselves felt, not only in the development of English town Universities, but in the development of Universities in the British Dominions. So far as the Workers' Educational Association is concerned, it has always claimed that Universities are, and must be, non-partisan institutions. It is the fundamental principle upon which its attitude to Universities is based. The maintenance of this principle is so essential that, on purely educational grounds, it will use every possible instrument it can to prevent its violation. The Leeds strike is for to-day, the Universities for to-day and to-morrow.

For the second point, no Joint Committee has ever concerned itself with "a tutor's doctrine." If any tutor propagated Capitalism, Socialism, Syndicalism, Conservatism, Liberalism, Anglicanism, Romanism, Agnosticism, or any other "ism" in a class he would at once be asked to mend his ways or resign. It was once brought to the notice of the General Secretary of the Workers' Educational Association that a tutor spoke as though Free Trade were inalienable from English conditions. The fault was pointed out, acknowledged, and ended.

So far, however, records prove that freedom has been actively encouraged, and that neither Socialism, nor Capitalism, nor Anglicanism, nor Agnosticism, nor any other force has even attempted to dominate a class, which regards itself as a place "in which the intellect may safely range and speculate, sure to find its equal in some antagonist activity, and its judge in the tribunal of truth; a place where inquiry is pushed forward, discoveries verified and perfected, rashness rendered innocuous, error exposed, by the collision of mind with mind and knowledge with knowledge; a place where the professor becomes eloquent, becomes a missionary and preacher of science, displaying it in its most complete and most winning form, pouring it forth with the zeal of enthusiasm, and lighting up his own love of it in the breasts of his hearers." *

To return to the specific case quoted by the reviewer, those who have an intimate knowledge of the W.E.A. have little difficulty in identifying the instance. It was a case where a Branch of the W.E.A. attempted (apparently at the instigation of the tutor) to exclude from visiting its classes any members of the Joint Committee who did not possess academic qualifications equal to those of the tutor. This was obviously aimed at the working-men members of the Committee, who promptly resented it and claimed equal right with the academic members to visit classes. No desire to visit the classes in order to discover whether the tutor's doctrine suited the views of the working-men members was expressed, although it was pointed out that in certain circles there was considerable suspicion of University teaching in economics, and that the presence of working-men members on the Committee and their consequent right to visit classes tended to remove any ground for suspicion. Equality of rights between the academic and the working-men members is vital to the principle upon which Joint Committees are based, and the working-men members were bound to safeguard that equality when it was challenged, as in this instance, and in this instance alone.

We join cordially with the writer in stating that there is need for a "better understanding of the true meaning of education"; but that need is by no means shown because awkward and searching questions are put to tutors—call it heckling, if you will. The rapid fire of questions in a tutorial class is one of its chief glories. It is a proof that "education" is understood as Plato and all great teachers have understood it. A tutorial class could never exist as such if thirty passive students listened to and took for granted the wisdom and experience of one man. It has been rightly said that there are thirty-one students and thirty-one teachers in a tutorial class, with thirty on the roll. Most of the students are adults of ripe, if sometimes perforce narrow, experience. Men of European reputations are content to learn from them even as they teach them. Any students or teachers who strike a propagandist note soon realize that it is out of harmony. It is not to be supposed that every statement is wise or sound. The foolish things said in tutorial classes, both by students and tutors, would fill a book of many leaves.

It is impossible to describe a class adequately, but a writer in the *Round Table* makes the attempt.

Let us follow Erasmus [who is supposed by the writer to be repeating his sixteenth century action] for a day or two as he takes stock of this new educational movement. In one of the Five Towns there is a block of school buildings occupying a vacant plot by the side of a factory. Four great ovens, like giant champagne bottles, overlook the premises, and seem to leer wickedly into the playground. When Erasmus visits it at night one of the rooms is still lighted. Some twenty-five men and women are gathered there, of various ages and trades, but predominantly of the working class. They have come together, he is told, for a University Tutorial Class in Philosophy, which meets from 8 to 10. But they have come early, for it is not merely a class, but a club and a college; several of them are anxious, too, to have a private word with the tutor. The tutor, he learns, is an Oxford graduate with a good Honours degree in his subject, but if he talks to him he will find that he has learnt most of his philosophy in discussions with working people. For of the two hours of a tutorial class the first only is used for exposition, the second is sacred to discussion. So that a class consists, as has been said, not of twenty-five students and a tutor, but of twenty-six students, who learn together.

There is also a library in the room of some fifty or sixty volumes bearing on the subject—at least, the box is there, but the books are almost all in use, so that only the list of volumes is available for Erasmus's inspection. But the class, which is a democratic organism, has its own elected librarian and secretary, and from them he can learn all that he wishes to know. He will find that the books are not only diligently read, but form a basis for essays, which are a regular part of the class work. He will discover how various and vexatious are the obstacles that industrial life sets in the way of this new type of University student — the ravages of overtime, the anxiety of unemployment, the suspicions of foremen and managers, the difficulties of obtaining quiet for reading and writing. He will hear of one student, nearly blind, who came regularly to class and made pathetic attempts to do his paper work in large letters on a sheet of wall paper; of another who found it quietest to go early to bed and rise again after midnight for an hour of two of study; of another who, joining a class at sixty-nine, attended regularly for six years until the very week of his death. And in the discussion, if he stays for it, he will hear the old problems of philosophy first raised in Plato (who is still used as a textbook) thrashed out anew from the living experience of grown men and women.

But he cannot stay, for he will be carried off to the parent class of the district, which is holding its 144th continuous winter meeting. Here he will find a new method. The tutor is standing aside: for the class has been turned for once into what University professors call a *Seminar*. Two students are reading papers on special aspects of the year's subject, which is the French Revolution. Erasmus is in time for some of the second, a character study of Turgot contributed by a porter's engineer, who, as he afterwards confessed, had got up at

* "University Tutorial Classes," page 113.

4 a.m. for a week to have it finished in time. The matter and the style are fully worthy of a University *Seminar;* the delivery would do credit to a teacher of elocution. For here is a student who has been in public life, and knows the value of the spoken word. He has put his heart into the subject, and is not ashamed to show it.

It is satisfactory to notice, however, that, in spite of the gratuitous and wrongly based warnings of the statement, there is, as a whole, an unwilling approval of Tutorial Classes. Now and again there is even an undercurrent of admiration. Still, the temptation to prophesy that the "brave show of the early days" will pass away could not be resisted. Those who work with the minds and spirits of men always look with awe into the future. A starved educational system such as that of Tutorial classes, and an Association which exists upon the self-sacrificing efforts of its workers and cannot get sufficient money, may break down for a time. At the present, however, the facts are plain. In 1913–14, a later year than the statistics commented upon, the classes rose from 102 to 145, and now exist in Australia and Canada. It is certain that in 1914–15 the number of classes will be limited by the supply of funds. Several Universities have felt compelled, wisely or unwisely, to refuse to add to the number of their classes simply because of the lack of money. The truth is that in our time, at least, the demand is without limit.

The "very slight inclination" towards other than economic subjects is markedly accentuated by the figures for the session just closed, which show a record of twenty-one classes in General History, seventeen in Literature (including one in Welsh), nine in Philosophy and Psychology, eight in Political Science, six in Sociology, and one each in Biology, Geography, and Natural Science. This seems to show that the preference for Economics and Industrial History is not due to the fact that "the classes are attended by working-men who have 'advanced' ideas" (although the more with advanced ideas who attend the better; they often make the best of students), but is simply an illustration of the familiar truth that the human mind works from the known to the unknown. Workpeople desirous of education naturally ask for instruction in subjects on which their minds are working.

The problem of the future is not to enrol students, but to secure their freedom when they are enrolled. Directly a system appears to be successful, there are not wanting those who seek to control it. Moreover, there are many officials who, having climbed the educational ladder, seek, unconsciously perhaps, to maintain the unique splendour of their positions by depreciating the educational efforts of those amongst whom they were born. That is a tragedy of the educational ladder. Opposition to Tutorial Classes comes far too often from working-men who will not study themselves and fear others doing it, and from workmen's sons who have attained a University education.

It would have been far more profitable if this article had been a positive statement of Workers' Educational Association principles and methods, but that could not be. Further, it is unfortunate that the writer of the book should be placed in the difficult position of commenting upon its notice: but perhaps no one else knows the facts completely. The reviewer of the book evidently felt it a duty to chasten enthusiasm, and so with ease at least he quotes the first and last lines of the volume. It reminds one of the comment made upon the Marriage Service of the Church of England, that it began "Dearly beloved" and ended with "amazement." Certainly the concluding sentence torn from the book is a "trifle obscure" —nay, involved—and does seem a little like a prediction of the millennium.

But after all, are not most people agreed that "education" is a powerful force in the ordering of the ideal state? If a highway of education is created which provides for "each man, woman, and child, the education which they ought to have for their complete development," it will react on society, making it altogether a nobler organism; a "millennium," if you will, using the term loosely. We stand by the statement at the opening of the preface: "The desire for education, as a way of life rather than as a means of livelihood or a mere intellectual exercise, is instinctive among English people, and ready to reveal itself, under favourable conditions, at any moment." Granted its truth, the reviewer even admits the possibility of a millennium.

The W.E.A. has had to make its own path in the face of financial difficulties. No person has ever stood behind it financially, and the amount of work it has set on foot is far beyond that which its finances would justify. It is often held to be a rich Association because it does so much. The truth is that it is rich in the enthusiasm of a large number of working men and women, who, though often overworked and underpaid, are yet ready, for the good of their time and generation, and for the happiness of others, to strive unceasingly for the development of education. It is this enthusiasm which has made it possible for the Association to proceed, on the assumption that every normal person not under the influence of an overmastering passion, is ready to be interested in the things that are more excellent. The sentence does not mean that every person is capable of becoming a fine scholar, but it implies that a good proportion of persons out of any group are. How else account for the fact that whenever it wishes to stimulate the start of educational work it succeeds, unless some personality makes the conditions unfavourable?

Classes of thirty are now common in English villages. Sweated women turn eagerly to study Shakespeare. Networks of classes are springing up everywhere. It is a Workers' Educational Association maxim, "Give us an audience and we will make a class out of it." The Principal of the University of London calls the Tutorial Class system a great University. If there were funds enough there could be thirty students in every town and considerable village going on continuously, and replaced as overtime, removals, emigrations, and death caused inevitable gaps. This "great University" must aim at reaching for each class the equivalent of a University Course in Honours. It is staffed "not merely by some of the ablest of the younger generation of University lecturers," but in the summer courses by many of the most distinguished scholars of our time.

In conclusion, "the Tutorial Class" is not "the distinctive feature of the Workers' Educational Association, the true focus of all its effort, and probably the only valid reason for its existence." It is simply its most notable educational creation—that is all. If there were no Tutorial Classes the vast work of the Workers' Educational Association would go on. There may be three thousand students in Tutorial Classes, but there are ten thousand in classes running for one year or less. Moreover, it is a propagandist body striving by all possible means in its power to stimulate a great belief in national education such as this country sorely needs. Finally, it stands as representative of the minds and ideas of the greater portion of the community, the finest scholars and the hosts of labour. It has proved itself a sure interpreter.

COMPULSORY MEDICAL TREATMENT.

By C. A. Parker, F.R.C.S.

Mr. Justice Darling has recently given judgment in a case coming under the Children's Act and stated to him in the High Court by the Justices of Melton Mowbray. He has decided that for a parent *not* to allow an operation on his child—in the particular case for the removal of adenoids—was wilfully to neglect the provision of proper medical aid for the child, and that the justices might therefore properly convict.

This decision raises the whole question of compulsory medical and surgical treatment; its necessity, its advisability, its value to the community, its difficulties and dangers under existing circumstances, its possibilities under altered conditions.

The fact that a good education adds greatly to a man's productive value has been so firmly grasped that education has long been made compulsory. It is now beginning to be realized that health, too, means wealth, both to the individual and the nation, and the question arises whether it also should not be made compulsory. Some help may be gained in answering this question by comparing the gradual development of our system of education with the various steps which have already been taken in matters of health and with those to which the trend of things seems to be leading.

During the latter half of the eighteenth century and in the

early days of last century education was at its lowest ebb, and a large proportion of the children, especially those of the poorer classes, grew to manhood unable even to read and write. The Church of England, to its credit be it said, first aroused the nation to some idea of the importance of education, and founded in many a town and village an elementary school for teaching the children of the poor "the three R's." Up to 1871 these schools were supported chiefly by charity, but partly by the "school pence" which parents were called upon to contribute weekly, but in those days there were no compulsory powers on the part of the State to insist on children being sent to school, or on being kept at school up to any particular age. In 1871 the elementary education of all children from the age of five years to that of thirteen or fourteen became compulsory, and parents who failed to comply with the law might properly be convicted.

And here it must be particularly noted that the compulsory element having been once introduced it became necessary to make education free of all pecuniary charge to the parents. In the first place, there were parents who had insufficient money to pay "school pence," and in the next place, it would be an infringement of individual liberty to dictate to a man on what he should spend his hard earned wage. Food, clothing, and house accommodation, so esseutial to health, were as important as education, and, indeed, necessary to education. A man must therefore be free to give his children that which they seemed to be most in need of, and consequently if education was to be compulsory it must be free. So eventually the elementary schools were thrown open to all the children of the nation without charge. Then, as time went on, it became more and more evident that it was necessary that the State, which imposed compulsory education on its citizens' children, should control education, and hence arose the Board of Education at Whitehall and the passing of the management of elementary schools from the sphere of private and charitable enterprise to Authorities publicly elected. In this way only could education be systematized and co-ordinated and its standard of efficiency raised.

At the present time it is generally recognized that education is intimately correlated with health, for it is waste to try to educate a child lacking health; and, moreover, all the advantages of education are lost if the pupil on leaving school is destroyed or permanently incapacitated by disease.

It is interesting to note that the course which health matters are now taking bears a very close resemblance to that which education took in the past, and there is some hope of the two being put on an equal footing and running hand in hand in the future.

The Church, again, was first to concern itself about health, and the priests according to their lights doctored the suffering poor, whilst many of the existing hospitals were originally founded by and attached to some religious order. Later a number of other hospitals were founded and supported by charity and managed by private enterprise, and moreover Clubs, Dispensaries, Medical Missions, and the modern extensive "Out-patient" departments, supported partly by charity and partly by the people's pence, were started as adjuncts to the older hospitals. At the present time national health is in the stage, passed through by national education nearly half a century ago, namely, of charity, people's pence, and government grants or assistance. Some hospitals and provident dispensaries are still purely "charitable institutions," other hospitals and provident dispensaries are partly charitable and partly supported by workmen's contributions, whilst under the Insurance Act the "people's pence" become compulsory on all workers with incomes below £160 per annum, and the scheme is assisted by substantial government grants and by what never was demanded for education, namely, compulsory contributions from employers.

Three stages remain to be accomplished before the health of the nation will have reached the same rung of the ladder as the "education of the nation." Medical and surgical treatment for all diseases must be made compulsory; it must then at once be made free and open to all, and, lastly, the State must assume control of the Public Health Service.

Compulsory doctoring, which already exists to a very great extent, may sound to some far more terrible than compulsory education, and it may appear to encroach more on the liberty of the individual; yet if the present ill-health and faulty physique are to be corrected, and if in future there is to be a healthy nation sound in mind, wind, and limb, it will probably have to be extended. The nation is, after all, made up of individuals, so it is essential to the nation that each individual unit of the nation should be rendered and kept mentally and physically healthy. It is unfair to the community that certain of its members should be allowed to "enjoy" bad health, for the healthy are not only deprived of the productive power of the sick, but have also to support them. Moreover it is unfair, because a source of danger to the whole community, that individuals should be allowed to contract and leave untreated infectious and contagious diseases.

As pictured in Butler's imaginative book, "Erewhon," all disease should be looked upon as a crime against society and a punishable offence, whilst concealed or untreated disease should be avenged with the utmost rigour of the law. Moreover, the loss of a child by death is a loss to the community of a potential worker who, in the ordinary course of events, would, for a period of twenty-five years, be able to create wealth for the nation to the value of some £200 a year. And apart from the production of wealth, every child that is born is born with a destiny to fulfil and it is unfair to the community, unsocial and immoral, to allow that child to die of some preventable disease before its destiny is fulfilled. From another point of view, too, compulsory prevention and curative medicine seem to be of the utmost importance: the birth-rate of England has for many years been steadily declining, and if this country is to hold its own in the race of nations, it is essential that those children that are born should grow up strong and of good physique and in every way worthy servants of the community. A low standard of national health combined with a decreasing birth-rate must, in the long run, mean individual and national suffering and poverty.

All legislation should in the first place aim at extending to every individual unit of the nation the greatest possible degree of happiness, health, and prosperity, but in order to secure this it is often necessary to put restriction on certain individuals for the benefit of the whole community; and so, in matters of health, certain individuals must be restricted and compelled in order that the nation as a whole may become strong and vigorous. The element of compulsion must be introduced in the matter of the prevention and treatment of disease.

A moment's thought will reveal the extent to which compulsion in matters of health is already being carried out, and much comfort may be gained by realizing that no individual is really the worse for it, whilst the community gains enormously. There are a host of laws and by-laws compelling individuals to maintain their homes in a sanitary condition, there are others forbidding people to purvey unsound meat or polluted milk, and there are others regulating the conditions of industry, the object of all of which is to prevent disease, and no one would have these laws repealed. Then doctors or householders are bound by law under the penalty of a heavy fine to notify to the Sanitary Authority the occurrence of certain infectious fevers, such as small-pox, scarlet fever, diphtheria, puerperal fever, erysipelas, tuberculosis, and in some districts measles and cerebro-spinal meningitis, and to this list can now be added infantile ophthalmia, the source of so much blindness. On receiving the notification the Sanitary Inspector must visit the house, and if he considers the patient cannot be isolated with sufficient security to render the other residents safe from infection, he can insist on the patient's removal to the Municipal Isolation Hospital, where he will be isolated and treated. Should the patient or parent refuse such treatment, a summons can be issued and a fine or imprisonment will follow conviction. As a matter of fact there is now practically no difficulty in gaining free consent for the removal to Isolation Hospitals. There is no taint of charity and no stigma of pauperism attached to these hospitals, and they are utilized by middle-class people as well as the workers; they are democratic institutions, and the public generally has come to recognize their advantages. But be it noted that, the element of compulsion having been introduced, treatment is at once put on the same basis as education and is extended to all patients free of charge.

From the public health point of view compulsory notification, isolation and treatment have proved of enormous advantage by preventing disease, by cutting short epidemics, and by

saving life, and whilst these methods of compulsion are good for the community they do not act hardly on individuals who have at their command free of charge well equipped up-to-date hospitals, the services of specialists and expert nursing, affording to them infinitely better chances of rapid recovery than they could obtain in their own homes. The extension of compulsion to other diseases would likewise greatly benefit the community without inflicting hardship on individuals who would have brought within their reach all that modern science and skill can offer them.

As another example of compulsion accompanied by freedom from charge for services rendered may be mentioned vaccination as a preventive measure against small-pox. There may still be room for dispute as to its necessity and as to the rights or wrongs of its compulsion, but it could never have been made compulsory unless at the same time it had been made free of cost to the individual. Whenever the community considers a thing so necessary to its welfare as to make it compulsory, the community collectively must eventually shoulder the cost.

Recently, however, there has been legislation which directly or indirectly extends the principle of compulsory treatment but without making it free, namely, the Children's Act of 1906, Medical Inspection of School Children Act, 1908, and the National Insurance Act of 1912. It may be predicted that the fulfilment of the compulsory clauses of these Acts will before long be rendered free of cost to the individual. The Children's Act has laid down that a parent renders himself liable to conviction at law if he fails to provide proper medical treatment for his children, or, in other words, the community has taken upon itself to compel a parent to have his children medically treated in a proper way, but up to the present it has failed, except in a few instances, to provide him with the means of carrying out the law.

Worse has now befallen the parents of the wage-earning class, for as the "text" to this paper points out, Mr. Justice Darling has further defined proper medical treatment by deciding that a parent may be properly convicted if he fail to act on the advice of a medical man and submit his child to operation. This may be a necessary and kindly decision for the sake of the child, and good for the physique of the rising generation, for undoubtedly there are instances in which the prejudice or ignorance of parents in refusing to follow the advice of their doctors amounts in effect to criminal neglect; yet under existing circumstances it opens up a vista of difficulties and hardships to the individual parents *because* compulsion is not accompanied by opportunities for the best possible medical and surgical treatment free of all cost. It is a law which the rich can easily fulfil if they wish to do so, or can as easily evade without being sued before the Justices of the Peace. It is a law which the poor man can fulfil only under difficulties, and yet cannot evade without detection and possible punishment. The rich man who concurs with the medical advice offered to him can submit his child to operation at the hands of an expert with all necessary comfort and in fully hygienic surroundings. If, on the other hand, he has a prejudice against operation, he can take his child from specialist to specialist until he finds one to express an opinion in accordance with his own, and then, with a satisfied conscience, he can continue to wilfully neglect his child, resting satisfied that the arm of the law will not reach him. The poor man may be told by the school doctor or by his general practitioner, neither of whom are specialists, that he should submit his child to an operation. He may have honest doubts as to its necessity or even its advisability, and he may have reasonable fears as to its dangers and results. To whom is he to go for expert advice? whither shall he turn for skilful operation? The community bids him under the fear of punishment submit his child to operation, but the community gives him neither opportunity nor place to comply with the law. He cannot afford a specialist's opinion, and still less can he afford an expert's fees for operation. The voluntary hospitals are charitable institutions, and the community must not compel its citizens to be the recipients of charity; moreover the community cannot compel the voluntary hospital to extend its services to all and sundry, and, even if hospital authorities were willing to do so, it would be a physical impossibility for lack of accommodation.

Under existing circumstances it would be little short of cruelty to compel the children of the poor to undergo some operations—for example, for the removal of adenoids and tonsils. The number of such cases is so great that the existing hospitals are unable to deal with them in a satisfactory or even in a humane manner, and after-care and nursing are absolute impossibilities. The children must return within a few hours with exposed wounds to dirty homes and surgically filthy beds and to over-worked mothers, or even in some cases to the care of a neighbour who looks in occasionally. Many are the cases of septic complications which result from these conditions.

Again, from the point of view of the man who is neither rich nor poor, and who can afford moderate fees for advice and operation, is it right to compel him under existing circumstances to apply for and accept the advice of a doctor? As long as doctors are paid for the work done or "by the piece," so to speak, their opinions cannot help being just somewhat biased in favour of operations, and if parents are to be compelled to submit their children to operations, surely all question of pecuniary gain, both to the man who advises it and the man who performs it, must be eliminated.

Then as regards the School Medical Service: its duties are to medically examine all elementary school children on first entering the schools, and at other times during their education. These examinations are practically compulsory, and therefore they are free. But already pressure is being brought to bear on parents to have those children who are found in any way physically defective properly treated. The element of compulsion is creeping in; indeed if the Children's Act as interpreted by Mr. Justice Darling is to be enforced, both medical and surgical treatment have already become compulsory. Alongside of this there is a growing tendency to establish school clinics, at which ordinary children's ailments can be treated free of all charge to the parents. Inspection is leading to compulsory treatment, and compulsion is in its turn leading to free treatment.

There can be no doubt that if the treatment of children, operative or otherwise, is to be compulsory, it must, like education, be free; and not only must it be free, but, since we are dealing with matters of life and death, every individual of the community must have at his service for his children the best medical service possible. It is a serious thing to compel a father to submit his child to operations, all of which—even the simplest—must be attended with risks of complications, risks of permanent damage and, indeed, risks of life. Before the community shoulders so great a responsibility it must provide for *all* the most skilled advisers, the most expert operators, and the best of hospital accommodation, so that everyone can feel, whatever be the result, that all was done for the best in the best possible manner. The free use of these services must be a citizen's right, and neither charity nor pauperism must taint this right.

Passing to the Insurance Act, it is seen that about 14,000,000 persons have been compelled by law to insure *against* sickness and *for* medical treatment. Indirectly this means compulsory treatment, because an insured person cannot declare on the funds of his approved society without a doctor's certificate, and he cannot remain on the funds without producing weekly such a certificate to say he is unable to work. No doctor would grant these certificates unless the treatment prescribed were carried out. So in effect the Insurance Act subjects some 14,000,000 people to compulsory medical treatment, and just as education when made compulsory became free, so in the near future must medical treatment, now that it has become compulsory, be made free. The contributory basis must be abolished, because it is senseless to increase the causes of ill-health in order to cure ill-health. The community has no right, for what in the long run is for its own benefit, to demand from underpaid workmen contributions which even from the health point of view could be much better spent on food, clothing, or improved house accommodation. Not only must medical treatment be free, but those who are compelled by law to submit themselves to it must have at their command the very best that modern knowledge can offer them, for, as in the case of children, we are dealing with matters of life or death, with temporary as against permanent disablement, and moreover we are dealing with breadwinners on whose health and efficiency many others may depend.

It has been pointed out that compulsory education necessitated free education at the expense of the public, and that

free education quickly involved State control through a Board of Education and local administration of the schools by publicly elected bodies—in order that education might be systematized, and its standard of efficiency raised and maintained. In the same way as the compulsory element in matters of health becomes more fully established, and as the provision of a free service of doctors and hospitals is extended, the State must assume control. A Board of Health must be established with a Minister of Cabinet rank to control all matters concerning the health of the nation and to co-ordinate all the present disjointed public and semi-public medical service, now under some half-dozen different Government Departments. The administration and management of the voluntary hospitals and other suchlike institutions must be taken out of the hands of private enterprise and charity and placed under publicly elected bodies, controlled by the Central Authority, the Board of Health. This means in short the gradual establishment of a complete State medical service with a vast system of national or municipal hospitals, clinics and dispensaries, through which all comers may be able to obtain the advantages of all the recent advance in medical and surgical knowledge, and of all the allied sciences which have been harnessed to medicine for the prevention and cure of disease, and for the improvement of the physique of the nation.

In the meanwhile it is of national concern, and of immediate importance, that the health of the children should be more efficiently dealt with than at present. In England and Wales alone there are four million children under school age, six million of elementary-school age, and a further two million between school-leaving age and sixteen, at which age they become insurable, and so entitled to the medical benefits of the Insurance Act. That is, there are twelve million growing children, on whose health and strength the future of the nation depends, who are left without any organized method of obtaining medical guidance and treatment. The health of millions of these children is left in the hands of ignorant parents, who, with hatred of the Poor Law on the one hand and the dread of a doctor's bill on the other, neglect to seek medical help for all small ailments and many of the bigger ones, any of which may contain the germs of permanent ill health, disability, or destruction. It might be thought that the absurdity of this needed only to be pointed out to cause a revolution in methods, but unfortunately each step in advance has to be hardly fought for.

At the present time, children are medically inspected from time to time at school, and through the kindly offices of members of the care committees a great many of them become recipients of such medical treatment as is open to them. This treatment, however, owing to the financial limitations of the parents or to the limitations of accommodation at the voluntary hospitals and for other reasons, is often perfunctory and very unsatisfactory. Adequate medical treatment is the only logical outcome of medical inspection and the proper machinery for carrying this out should be provided.

But even if proper and efficient medical treatment were the constant outcome of medical inspection at school, it must be remembered that much permanent damage may befall children between birth and school age, which may render treatment in later years comparatively useless. Partial or complete loss of eyesight, impairment of hearing, deformities of chest or limb, tuberculosis, and various other forms of permanent ill-health, most of which are preventable, may have fastened themselves on the children. Unless children are handed over to the school authorities physically sound, medical inspection and treatment will avail little and the progress of education will be hindered. Again the advantages of the medical benefits of the Insurance Act are also rendered to a great extent useless from the point of view of National Health unless boys and girls are kept healthy during their infancy and school days. Indeed, in order to secure a healthy nation, medical inspection (and, when necessary, treatment) must be continuous from birth onwards. It is wasteful of money and futile to leave gaps during which growing children may become permanently injured through lack of medical supervision and treatment. At the present time there are unfortunately two such gaps, one between birth and school age, and the other between leaving school at thirteen or fourteen, and becoming insured at sixteen. It is possible to show in figures what a large number of children either never arrive at school age at all or enter schools handicapped by some preventable or neglected disease. It is not so easy to show in figures the ill results of the lack of medical supervision amongst young adolescents between the ages of thirteen and sixteen; but it is only necessary to reflect that the age of puberty is recognized by all medical men as a most critical period in both sexes, perhaps especially so in girls—the future mothers of the nation. It is a time when irregularities and abnormalities of the sexual functions most frequently occur, and when anæmia, debility, and other conditions causing want of health are common, and predispose the patients to infection with tubercle. In many ways it is a period when both boys and girls most require a little steadying advice and some explanations and help from some sympathetic medical adviser. To obtain a high standard of health and physical fitness for the nation these two gaps must be filled in with some system of medical supervision.

The question of keeping the twelve million children of England, who are below the age of insurance, healthy, and of building them up in physical strength is a large one. It is too great a problem to be left to charity and private enterprise to tackle in a really efficient manner; it must be undertaken by the community for the good of the community. Nevertheless it must not be overlooked that much really useful work has already been accomplished by a large and devoted army of unpaid social workers. Indeed, they have pointed the way of advance, and it cannot be doubted, if zeal and unselfish work could unaided have accomplished the task, it would have been done.

They have shown that the care of the child must start even before birth by the care of the expectant mother, and they have pointed the way in mothers' kitchens and centres for mothers, which feed and advise women before and after their confinement. They have shown that the care of the infant during its first year of life is of vital importance to its after health, and they have pointed the way by forming a corps of voluntary health visitors working under the Medical Officers of Health to visit and advise mothers. They have recognized the importance of the care of infants under school age, and they have pointed the way by establishing baby clinics, the best example of which is that founded in memory of Margaret MacDonald and Mary Middleton. They have proved the advantages of treating and advising the school child, and they have pointed the way by forming school-clinics, the best example of which is that started and conducted by Miss Margaret McMillan at Deptford. They have to some slight extent been able to keep the adolescent in sight and tend his welfare by their work on after-care committees. All these methods of voluntary help have proved themselves thoroughly efficacious in building up a healthy generation, but naturally they have only touched the fringe of the twelve million infants, boys and girls, who require constant supervision. The way having been made clear by voluntary effort, it now remains for the community to shoulder the burden and extend these methods so that all shall be included.

The Board of Education working through the Local Educational Authorities, or the Local Government Board working through the Medical Officers of Health, should take over the responsibility for the health of mothers, infants, school children and adolescents so that the latter may be handed over with a good bill of health to the Insurance Commissioners. With mothers' kitchens, health visitors, baby clinics and school clinics, established and working in close co-operation, the child could be passed on from the one to the other with a tabulated record of diseases, tendencies, and physical idiosyncrasies. In this way medical supervision could be continuous from birth to school leaving age, and the written record would be of value to teachers as well as doctors. The gap between leaving school and insurance could best be dealt with by abolishing the gap, that is, by raising the school age to sixteen. Besides having the advantage of keeping the adolescent under the supervision of the school doctor, this would have so many additional advantages, educational, moral and others, that it is to be hoped that before long this may be an accomplished fact. In the meanwhile medical centres should be formed in connexion with the after-care committees, or the adolescent on leaving school should become eligible for medical treatment under the Insurance Act at the expense of the community. In

these ways medical supervision and treatment of children could be made continuous from birth onwards, and being provided—partly so at once and wholly so in the near future—free of cost to the individual, could well be made, like education, compulsory. But if made compulsory the medical service would have to be made as complete and perfect as it is humanly possible to make it, for in dealing with life and death no risks must be taken. This would entail the immediate acquisition by the central authority responsible for the health of the children of some of the existing children's hospitals or the building of new ones. These hospitals must be thoroughly up-to-date institutions, and attached to them there must be a competent staff not only of general practitioners, but of physicians, surgeons, specialists, and bacteriologists working in co-operation with each other and responsible for the baby clinics and the school clinics. With such a service parents would quickly realize that they had at their command the best that modern science could offer them, and would soon welcome such good opportunities for treatment, compulsion or no compulsion.

In conclusion I would point out that even if the whole scheme I have outlined were carried out in its entirety to-morrow, but a beginning would have been made in the work necessary for the building up of a healthy generation, *because* the conditions which cause disease would have been left untouched. There would however be hope, for a great army of doctors organized to protect the health of the nation's children could not rest content until every germ-breeding, disease-begetting slum had been destroyed. They could not stand by and see children sicken and suffer for want of food, for want of clothes, and for the want of warmth. They could not allow pregnant women to work hard in unhealthy surroundings with starving children as the only alternative. They could not see mothers of infants driven to desert their young by the necessity of earning the wherewithal to feed them. They could not allow the fathers of families to be incapacitated by the conditions of their employment and be driven into the morass of destitution. They could not pass over without loud protest the adulteration of food nor the supply of impure and polluted milk. They could not see drunkenness encouraged by a public house at every street corner. Indeed they could not rest content until they saw remedied the manifold social diseases which cause so much disease, suffering, and death. It is part of our work to help in removing these blots on our civilization, for not until this is accomplished can we give to every child of the nation the best possible chance of growing to manhood healthy, vigorous, and without blemish.

THE APPEAL OF GERMAN.

By Margaret Körner, M.A.

To those who can turn aside for a moment from the important claims of method, the results of the following little psychodiagnostic experiment may be of some interest.

I have at present the rather unusual experience of teaching German to four different forms, all of whom began in September last. My attempt to discover what the girl herself makes of it all could be carried out in a larger number of parallel cases, and covering a wider range, than one teacher can generally command at the same time. Choosing a day when the lessons so followed one another that no comparisons on the subject could be made by the various classes betweenwhiles, I gave out paper, and set the following unexpected *questionnaire* :—

1. Do you like learning German?
2. If so, why do you like it? If not, why not?
3. What use, if any, do you think it is to yourself, or anyone else?
4. What do you imagine a German girl of your own age is like?
5. Do you like French more than German?
6. Why?
7. If you knew a girl about to learn German, what advice would you give her towards making it as easy as possible?
8. Have you any remark to make about the language itself? Does anything about it strike you in any way?

I am well aware that objections are raised to the *questionnaire*, but it had advantages in the present case. The girls were fresh; they had not been submitted to such a test before. They were old enough to be quite accustomed to writing. Moreover, writing is a means of self-expression, which is quite natural to girls, and in which they take particular delight.* Further, no personality comes into conflict with their own. Had we handled the matter verbally, my own tones might have introduced some unsuspected element into the matter, suggested some line of response. The reply could scarcely ever have been honest and ingenuous; in part, because of the curious eyes and ears among the other pupils, waiting to pounce hilariously on it.

I trusted, therefore, to paper and pen, and assuring the girls that their answers should never be discussed with their colleagues or mine, and that no sincerely conceived answer, however strange, would shock me or make me "cross," I left them to their task.

The results provided one or two surprises. The great marks-scorers wrote little, and generally of dull quality; the originality and common sense appeared in what one had been disposed to regard as the medium girls; a few of the bright idlers came up to their traditional character of brightness; in only one case—and of that I am doubtful—could I trace an attempt to be consciously funny. I do not, of course, claim any universality for so small an experiment, but the frequent recurrence of some of the replies is of interest, if not guidance.

Of 39 papers received (the girls' ages ranging from thirteen to sixteen years), 19 declared, in an answer to Question 1, that they liked learning German, and 16 expressed themselves enthusiastically. Three were honest enough to say "Not very much," and one revealed a not uncommon psychologic state by saying, "Sometimes I do, and sometimes I don't." The same girl, however, when she had worked through the whole *questionnaire*, had so far made up her mind as to add at the foot of her paper, "But I like it on the whole." This qualification occurred on another paper. Most of those whose approval lacked fire stated the reason for it. The commonest bar to complete enjoyment was "grammer"—"verbs and things of that sort"—"definite articles." "Not quite so much as Latin," says one, "but it's more useful." There is a dim reproach in: "If I can go at a steady pace, and not try to learn more than I can"; and "I like it very much, when your not cross," contains another moral.

"Interesting," "nice," "easy," and "useful," were the chief descriptions given to account for its enjoyment. Six declared that they liked learning all languages; two found it "a change from other lessons"; three thought it would be "nice to be able to talk." One or two had German relatives; one even went so far back as to like it "because my grandfather used to speak it." Two found it "like English"; and the girl who considered the "German grammar easier than English grammar" surprised me. I was still more surprised when this opinion recurred three times under the last heading. Two had no "particular reason" for liking it; one confessed that she "gets muddled sometimes," and another that it is "nicer when you are beginning." Two acute young things discovered that "it helps you to pronounce your English better." There is an odd blend of nature and docility in the following: "Because I like learning new things, and because Mother wants me to like it; but I don't like it when it's all grammer."

It was strange to find even as many as six answers to No. 3 which contained no reference to travelling abroad. The next most important use was the material and utilitarian one—"You can get much better positions with much better pay if you can correspond in French and German." Seven had considered these problems, and three thought of teaching. Two thought it would "improve the memory," and amongst other secondary uses was the ability to read German letters (three) and books, "which would not be so good translated" (one). One put the following remote possibility: "Suppose a new girl came to the school, and could not speak anything but German, see how glad she would be if somebody spoke to

* See Claparède's "Experimental Pedagogy," trans. Louch and Holman, London 1911, page 198.

her in her own tongue"; and one took the position, "Suppose your husband were German—" and enlarged on it. "Most knowledge is useful, and therefore German is," ran one paper, and immediately after came the anticlimax, "It is some use if you go to Germany or take up languages to teach, but it is not if you don't."

With regard to No. 4, fifteen were quite at a loss, and I believe they had never before wondered about their German sisters. Fourteen got out of the difficulty by imagining she would be "much like myself"—"only fater," said one—and three hastened to add, "only she would speak German instead of English." It was pleasant to find in these and the remaining cases that the mental picture formed of the German girl is an attractive one. All sorts of kindly qualities and the traditional efficiencies were attributed to her. "Pleasant," "good-natured," "nice to talk to," "good at cooking and needlework," were the commonest remarks. Several said "stolid," or "quiet"; one "with her own individualism," whatever that may be. I was puzzled by "thinking herself greater than anyone else"; and appreciated the girl who wrote "she would think the English funny." The permission to add any remarks at the close of the papers produced two observations from older girls which ought to be inserted here: "In political affairs we are both trying to beat one another"; and "The German Army, I think, is far better than the English. I think that all countries should have conscription."

Nineteen girls preferred German to French, two carefully making the remark "at present." I am inclined to think that novelty does account for some of this majority, though it is the general experience that German is preferred. Seven preferred French, nine liked the two languages equally well, and four could not decide.

The reasons assigned for their preference were varied. Some found French "prettier"; two "knew more"; the same number found it "more interesting," and "there is more in it." Others found German "easier"; "more like English"; "French is hard to pronounce and spell"; "French is complicated"; "In French there are too many little words meaning the same thing"; and so on. One calculates, "fewer English people can speak German, and thus one has not so many people to compete against." One girl, after being unable to decide for either language, remarked, "It makes a lot of difference who teaches you."

The advice to friends offered me really interesting matter. Twenty declared, in one form or another, that attention to grammar was the most important thing. Five insisted on a little at a time, well learned, and four uttered merely moral precepts on attention and application. Only one despatched her friend to Germany at once to "get the accent"; another suggested "a German governess, and not to learn French." I was momentarily disgusted with "To get Dent's 'First German Book,' and have you to teach her."* But a few unsolicited testimonials for the system turned up: "To learn phonetics first, and then you know how to pronounce the words"; "to have a picture"; "to learn as we do"; "notice the words like English" (2); "practice difficult sounds like *z* and *sch*." But there is another opinion to record: "I don't like the book we learn out of; I don't like the system or the way it is put." It is noteworthy that, though the healthy dislike of grammar was general, its importance was equally often recognized. Only one paper suggested that the grammar might be acquired later, after the ability to speak. Lastly, I offer my admiration to the girl who thus put her finger on the greatest difficulty in modern language teaching: "Learn the cases in *English* first." Four papers had no advice to give.

I again looked forward to the answers to No. 8 with interest. Only nine had received no impression at all. Fourteen had found German "something like English"; and a budding philologist wrote: "It seems to me that German comes from the same origin as English." The consistent orthography had impressed once or twice, the difficulty of the pronunciation several times. "Interesting, but gutteral," said one; but five thought it "pretty." The likeness to Scotch pronunciation was found by one. I am at present at a loss to understand what is meant by "a softer speaking language than English." Gender, cases, and words were in turn labelled "difficult," and capitals to nouns in one case "funny and muddling."

That one girl could close her paper by saying "It is not a dead language, and never will be," seems to me significant. It almost suggests that the girl has not by any means apprehended, in spite of hearsay, pictures, and an oral method of instruction, the real fact of Germany and a German-speaking race as our next-door neighbours. I have touched on this point in dealing with No. 4. I was glad that the difficulty produced some curiosity on the subject, and that several papers added a request that I would tell a great deal about German girls. One or two other remarks were made. There is a subtle turning of the tables in "Do you like English better than French?" A few inquired how I myself had learned German. Certainly it had never before struck me that there might be curiosity in the mind of the class as to the psychologic state of the teacher, but several asked bluntly, "What are you asking these questions for?" or even "Why do you want to no?" Lastly, the biter was once again bit by "What *is* the use of learning German?" I felt momentarily as nonplussed as I was once long ago, when I had a letter from a little scholar who wrote, among other things, "I don't see why we should have these hated geography lessons, when they are no use or very little. For when a person grows up, he or she usually gets married and then geography is no use."

* I need scarcely say that this was not the only example of the ulterior motive.

A NOUS AUTRES.

[The Daily Press announces the formation of the Oxford University Co-operative Society.]

Who's for Oxford, oh, my brothers, from the sedgy shore of Cam,
From Downing unto Trinity and Clare?
Let us taxi to the station (for the fond and faithful tram
In this year of ruthless changes isn't there);
And the fare
Pay with chastened and with reverential air.

For our dear and elder sister on the Isis, it is said,
In her calm and isolated academe,
Where the manner's very jerky, and the hoods are very red,
And the flow of life is even as the stream,
It would seem,
Is awaking from her medieval dream.

And with sweet collaboration undergraduate and don,
In fraternal and co-operative plan,
Are plotting to supply the things we've always doted on
For the inner, and perchance the outer, man,
As they can,
From gramophones to buttons and to bran.

'Tis a fascinating vision which unfolds before our eyes,
That, entranced, the latest prodigies shall see,
When Balliol or the House in lactic cheese shall specialize,
When we seek, for something tasty-like at tea,
B. N. C.,
Or when "overweight" from Univ. issues free.

Let us hasten, then, my brothers, with our notebook and our pen,
To gather information as we may;
That in enterprise commercial our maidens and our men
Shall not, perforce, in future yield the day
In the fray
For the neo-super academic sway.

Let Girton leave the lexicon and advertise the frock,
And Emmanuel or Jesus boom the jam,
While Christ's announce acquirement of a mighty bankrupt stock
Of noble piles of best colonial lamb,
Or of ham;
And the Hall extol their patent folding pram.

A. C. B.

THE LIGHTER SIDE OF PEDAGOGY.

"Sister did it."

The kindly and leisured school manager dropped into the girls' department while needlework was in progress. He prowled round the room looking for something that he could praise. At last he found it lying on the desk in front of a small girl. He held it up in admiration and said: "This is very good." "It ought to be," was the shy reply, "my sister did it, and she is a dressmaker."

* * *

Phonetic Spelling.

At every Manchester elementary school there is a cane or a strap and a book called the "Punishment Book," in which offenders, offences, and punishments are all recorded. When the book is required by a class teacher the offender is sometimes sent to the Head's desk with a request for book and instrument. The other day a very little boy had been found guilty of untruthfulness (a sin we all grow out of) and had been sent to the desk for the book and cane. He came hesitatingly, and with tears in his voice said, "Please sir, will you send Miss —— the cane and the punching book?" He knew.—*Manchester Guardian.*

* * *

Fried Fish.

A few days ago one of the Government Inspectors paid a visit to a school away in the East End of London. While in one of the lower standards he questioned the boys on our coinage. He found that all knew the relation of a penny to a shilling and so on, but when he mentioned a "threepenny bit" the class was silent. This silence disturbed him, and on inquiry he discovered that no boy there had seen a "threepenny bit." Such ignorance must be cleared away, thought he, and he sent the monitor out of school to get 2s. worth of the unknown coins at a neighbouring shop—2s. being the smallest silver coin he had with him. After waiting for half an hour the Inspector began to doubt whether he would ever see his money again, but he decided to wait until the end of the session. At about 11.50 a.m. the boy reappeared carrying a large newspaper parcel, almost a foot square. Breathlessly he exclaimed: "Please, the lady didn't sell 'threepenny bits,' so I've got tuppenny and penny, and she said I was to ask if you wanted any chips."

* * *

The Value of the Left Hand.

Maloney was a boy, an Irish boy in fact, but he was not brainy. His parents, indeed, said he had plenty of brains, but we never had an opportunity of testing them; for he never brought them to school; he always came alone. Maloney loved mathematics, but he also loved encouragement: in fact, encouragement was essential to his success—to our success, too, we may add. It is true that we had carefully explained to Maloney all the intricacies of long division. Maloney knew the rules well enough, but he was waiting for the encouragement. That was his way. So there he sat idle as he lopped over his desk like a seal on a rock. We felt annoyed with Maloney, but his innocent look disarmed us. "Why don't you get on, Maloney?" we asked in kindly tones, wondering what his next excuse would be. "Please, Sir," said Maloney, plaintively, "I don't know which side to begin. *I'm left-handed.*"

* * *

A Finsbury member of the Education Committee (says the *London Teacher*) discovered a spectacled young Shakespearean a few days ago. "What are you learning?" he said to a class of girls in a non-provided school. "Shakespeare," was the reply. "What was Shakespeare's Christian name?" "William." "When did he live?" "In the time of Queen Elizabeth." "Can anyone give me a line from Shakespeare?" After a short interval a stolid-looking bespectacled girl answered, "How long are we to be troubled in this manner?" The story is told by Mr. Joyce Thomas, but we cannot find the line in our Shakespeare. The nearest approach to it is to be found in "As You Like It," Scene I, where occurs, "I will not long be troubled with you," which would be equally, if not more, indicative of the girls having had enough of their new Inspector.

CORRESPONDENCE.

EVENING CONTINUATION SCHOOLS.

To the Editor of "The Educational Times."

Dear Sir,—My attention has been drawn to an article in the issue of *The Educational Times* for April 1 entitled "Evening Continuation Schools: a Necessary Evil," in which it is stated that only 30 per cent. of the possible children attend classes in Edinburgh. I have to ask you to be good enough to correct in your next issue this misleading statement. The percentage of young persons in Edinburgh between the ages of fourteen and seventeen years receiving instruction during the day or in evening continuation classes is between 65 and 70 per cent.—Yours faithfully,

John Stewart, Clerk to the Board.

School Board Offices, Castle Terrace, Edinburgh.

April 9, 1914.

[The writer of the article wishes to express regret for the error. The intention of the writer was to say that 30 per cent. did not attend the classes.]

CURRENT EVENTS.

The Froebel Society announce a Summer School at Broadstairs, from August 1 to 22.

The seventh annual dinner of the University of London Graduates' Association is to be held at the Criterion Restaurant on Tuesday, May 12, at 7.30 for 8 p.m.

The fifth annual visit of Canadian Teachers in connexion with the "Hands Across the Sea" Movement is announced. The party expects to reach Plymouth on July 11.

The Alliance Française announces a Cours de Français at Havre in August, for English Teachers of French. Prof. L. Bascan is in charge of the course.

The seventh biennial Vacation Course of the School of Geography will open at Oxford on August 4.

The Yorkshire Summer School of Geography will be held at Whitby from August 3 to 22.

The foundation-stone of the new buildings of the Home Science Department of King's College for Women, London, will be laid by Princess Christian on May 7.

The sixth Philatelic Congress of Great Britain will be held in London on May 20, 21, and 22, under the auspices of the Royal Philatelic Society, and already thirty-five societies have appointed delegates.

The University College of Wales at Aberystwyth will hold a Summer School in Geography from August 4 to 22.

In connexion with the summer meeting of the English Association, Mr. Balfour will deliver his Presidential Address at Bedford College, Regent's Park, on May 8, at 5.30 p.m., Mr. John Bailey being in the chair. In the evening the annual dinner of the association will be held at the Café Monico, Mr. Balfour presiding. The American Ambassador and Mrs. Flora Annie Steel will be the guests of the association, and Prof. W. McNeile Dixon and Mr. John Buchan will also speak.

A Conference on Further Education is being organized by the Teachers' Guild of Great Britain and Ireland, the Workers' Educational Association, and the Letchworth 1904 Celebration Committee.

Educational associations are being invited to send delegates to the Conference (fee 5s.), which will be held at Letchworth. Information may be obtained from the General Secretary, the Teachers' Guild, 74 Gower Street, London, W.C., or from the Local Secretary, Edgar Wing, Esq., Norton Way, Letchworth.

A DEMONSTRATION Picture Lesson will be given by Miss H. M. Raw on Monday, May 4, at 8 p.m., at 16 John Street, Adelphi. The meeting is organized by the Moral Instruction Circle of the Moral Education League, and is open to all interested.

THE Printing and Allied Trades Exhibition, to be opened at the Royal Agricultural Hall by the Lord Mayor of London on May 13, promises to be of exceptional interest. It will be the largest and most representative Exhibition of its kind ever held in any part of the World, every available space in the Great Hall, the Gilbey Hall, King Edward's Hall, and the Galleries being occupied with exhibits strictly appertaining to the graphic arts; new machinery and appliances will be shown alike interesting to the expert and the general public in addition to a very fine display of specimens of printing by all processes, including Photogravure. The Exhibition has the support and patronage of the various societies associated with the Printing and Allied Trades, and practically every firm of repute in the Industries represented is co-operating to make this quadrennial Exhibition an unqualified success. The Exhibition will remain open until May 30.

PRIZE COMPETITION.

PRIZES are offered each month for the best replies to the subject set. Competitors may, if they wish, adopt a *nom de guerre*, but the name and address of winners will be published. Competitions, written on one side of the paper only, should be addressed to the Editor of *The Educational Times*, 6 Claremont Gardens, Surbiton, and should reach him not later than the 15th of the month. As a rule competitions should be quite short, from 100 to 500 words.

The first prize will consist of half a guinea; the second prize of a year's free subscription to *The Educational Times*. It is within the discretion of the Editor to award more than one first prize, or more than one second prize. Cheques are paid on or about the quarter-day following publication.

A prize of half a guinea is awarded to Miss W. B. Jenner, Sunnyland, Henley-on-Thames, and also to Mr. John R. Raine, Carlton, Notts.

SUBJECT FOR MAY.

The Best Motto for a new Municipal Secondary School.

The word "howler" being at present in the early slang stage, there is no positive authority to which we can appeal for its exact connotation. But the word is gradually working its way into the theory of teaching, and it would not be at all surprising to find it figuring before long as a technical term. It will be generally admitted that the following adjectives ought to be applicable to any answer in school that deserves to be called a "howler": (*a*) mistaken, (*b*) honest, (*c*) ludicrous (*i.e.* from the teacher's point of view), (*d*) reasonable (from the pupil's point of view). The definition might therefore run: "A mistaken answer that is honestly given by the pupil on what he considers to be reasonable grounds, but that appears to be ludicrous to those who know the truth about the matter."

In estimating the papers sent in, weight had to be attached to both the nature of the definition, and the quality of the illustrative examples. In the two prize papers that follow, the first has the better definition, but the second the better examples.

Mr. Raine gives the definition: "A 'howler' is a mistaken answer, in which the pupil, while honestly doing his best, is unconsciously very humorous." The examples follow:—

(1) A resident master in a private boarding school was explaining to a class of small boys the meaning of the phrase, "No prophet is accepted in his own country." Having given the meaning in its barest sense, he proceeded to supplement it. "Now suppose, boys, that Tommy Jones, when he grows up to be a man, makes some wonderful discovery. Well, of course, you will say, 'Oh! It is rather clever, but we all know Jones; we used to be at school with him, and he was always bottom of his Form.'" The boys were all agreed as to the truth of this. "Now," continued the master, "if Jones had gone away from home, to some other town, and brought out his discovery there, people, not having known him all his life, would have said he was one of the most famous men who had ever lived. So you see, boys, that if you want to become great men you must never stay in your native town." The boys were greatly impressed by this explanation, and after a few minutes one little fellow put up his hand. "Please, sir, is that why you left home?"

(2) The master was trying to get a precocious youngster of eight to understand the difference between the nominative and accusative cases in Latin, and he had firmly instilled into the boy's mind the following golden rule: "A noun is in the nominative case if it does something."

"Now, Clifford, we will take the sentence, 'Galba gives arrows.' What case is Galba?"—"Nominative, sir."

"Right; and what case is 'arrows?'"—"Nominative, sir."

"Wrong. Now think again, carefully. Well?"—"Nominative, sir."

"But, my dear boy, do the arrows *do* anything?"—"Yes, sir," answered the boy with great assurance.

"Oh; and what do they do?" asked the master in astonishment. —"They stick in you, sir."

One is a little suspicious about the honesty of the little fellow in the first example. Little fellows are sometimes sly.

Miss Jenner is more concise:—

> A "howler" is a mistatement made owing to confusion of ideas, and producing a ludicrous result. The following two examples were given in my own school. "'Condensation' is a certain sort of milk made in Switzerland." "'Lyons' is a town in France famous for its tea."

One competitor, who is disqualified because he gives no definition at all, sends the excellent specimen that appeared in the answers to a general knowledge paper in his school. Question: "Who was the founder of the Quakers?" Answer: "Titus Oates."

Another competitor gives the remarkable conclusion to an essay on "The Loss of the Titanic": "And two million hares were drowned." It is seldom that we have seen such a striking example of the difficulties involved in the erratic use of the aspirate.

It takes a Scotsman to appreciate the inwardness of the following. The teacher asked the pupil what was the meaning of the French word (*le*) *mousse*. The answer, as every schoolgirl knows, is "cabin-boy." But this pupil gave an unhesitating reply of "souris." To understand this you must know that the Scotch form of "mouse" is *moose*. So you have to work your way round: *moose* sounds the same as *mousse*; *moose* = "mouse" = *souris*. After this painful excursus we are glad to get back to the familiar "Edward III would have been King of France if his mother had been a man," and the transformation of Abraham from a "Bedouin Sheik" to a "bellowing sheep." We wonder what Mr. Thornton would say to this: "Much butter is imported from Denmark, because Danish cows have greater enterprise and superior technical education to ours."

We are not surprised to meet again the little cockney girl who, on being interrogated in the matter of French verbs, supplied *aujourd'hui* when her commonplace interlocutor would have been satisfied with *mourir*. It may be news to some that "The mineral wealth of the country is ginger beer and lemonade," and that Madame Patti was called the "Welsh Nightingale" because she sang at night; but we have read of these things elsewhere. We pardon the competitor who translates "Il ne faisait rien sans but" by "He did nothing without a drink." It is worth repeating, but it is hardly worth while mentioning again, that a triangle is a square with only three corners.

So far, however, from complaining that so many old friends have appeared, we are agreeably surprised at the number of first-hand "howlers," that the competition has brought.

Competitions were received from W. B. Jenner, J. R. Raine, V. K. Edwards, G. Kitching, K. Blyth, M. Wylde, F. M. Small, W. J. Kerley, "Fickle," W. D. Roberts, C. E. Pearson.

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II.—IN THE NURSERY.

By Miss Helen Webb, M.B.

On first thoughts the idea of sex teaching in the nursery may strike one as an anomaly. We should gladly think that at this early period of life, at least, there was no necessity for anything that could be called by that name. At no time, however, is it much more important that those in charge of children should have their eyes open to possible dangers, and also realize that very much of the future of the little ones under their care actually lies in their hands.

A chaste manhood or womanhood is not the growth of a moment: it is the outcome of the whole life that lies behind it. Neither is it built up of an abstract thing called sex-morality, but must be founded upon a compound of principles which ought to guide every department of the moral life, such as truthfulness, self-control, and consideration for others. Nowhere is it truer than in the moral life that if one member suffers all the others suffer with it. A well balanced mind and body, with the fullest possible degree of nervous stability, is what we should aim at in the education of our children, and this implies the best and wisest management of each stage of life as it is passed through. Looked at in this way, we at once see that the very foundations of chastity and moral strength are the habits acquired in infancy and childhood.

As is well known, the right treatment of habit in early days is an important factor in the supply and storage of nerve force, both then and later on. Upon the kind of training received during the nursery age will greatly depend the power of self-control in the years to come. On the other hand, much evil in the future may be due to the ignorance, and consequent carelessness, of those responsible for the care of little children during their first few years of life. Later teaching and training often fails of its best possibilities because what ought to have been seen to and taught in the nursery days has been passed by, and opportunities have been allowed to slip—opportunities which will never occur again, and the failure of which will render others in the future much less fruitful.

* The first article in this series, by Dr. Eric Pritchard, appeared in the April number.

The greater part of the teaching of this early time is indirect; much of it is positive, some negative, and it largely consists of the formation of good and healthy habits of life under the guidance of those who have the wisdom, knowledge, and watchfulness to recognize if all is going well. Nothing calls for greater experience and powers of observation, and everyone who has to do with little children ought to be aware of the great importance of many very little things. Everything matters.

"Education is an atmosphere, a discipline, and a life," and from the time each of us enters the world by the portals of birth, he is subjected to these formative influences. The little child is from the first becoming interested in the world where he finds himself, and forming links, first altogether physical, but soon intellectual and spiritual, with all things around him. If the outside interests are wide and rich, there will be the minimum danger of the things of the body taking too foremost a place. It is not desirable that he should dwell upon himself or turn his attention towards the sensations of his own body, more than is needed in order to fulfil the necessary duties towards it. For this reason physical wellbeing in itself makes for morality. Nothing causes us to dwell upon ourselves more than discomfort or disease, and the well-cared-for child is the one who is least likely to think unduly about itself. It is natural for young children to find their interests outside themselves, and activity and investigation of their surroundings is meat and drink to them.

Infancy and little-childhood are *par excellence* the time when habits both good and bad are most readily formed. The imitation and natural conservatism of small children, which tend to secure the exact repetition of an action on each occasion when it is performed, make it easier than not at this time to establish habits, and give great facilities for getting them into regular ways of every kind.

In very young children physical habits, however, are formed with the greatest ease and permanence. The special way in which each thing is done tends with them to become a cult, and the methods of their own home or nursery are apt to be regarded as *right* while those of other children are at once stigmatized as *wrong*. So indelible do these small habits of childhood incline to become that many of us practise them even to the end of our lives; and most people carry into old age some customs of the table or the toilet which date from nursery days. I have known a quite old lady who had never got rid of the feeling that, if she did not begin and end her tea with bread and butter, there was something wrong about it, and another who, to the end of a long life, always arranged her clothes in the drawer in the exact order her mother had taught her when a little child. Physical habits, therefore, learnt in early life are apt to become "ten times nature," and may be depended upon as the firm allies of right action in future days. They are possessions of a lifetime, and ought to be the very basis and foundation of clean living.

The fact that sensations related to the exercise of the functions of sex can be elicited in the merest baby, and that many little children, accidentally discovering this, practise it in all innocence of evil, is a fact of which everyone in charge of them ought to be aware. All mothers, teachers, and nurses ought to know something of the conditions liable to lead to such a state of things. Any kind of local irritation may give rise to such habits. Tight, ill-fitting clothes for which children are growing too big, or those which have been originally made a bad shape or of too rough material, are common causes. Absence of proper covering for the lower parts, which leads to too ready access to their own bodies, is a cause often seen, especially among poorer children. Lack of cleanliness and other unhealthy conditions, causing local soreness and irritation, may also call the attention of children to themselves, and the friction to which they consequently resort is likely to give rise to undesirable habits. In little boys secretion collecting under the foreskin often gives rise to great irritation. On this account every mother of sons (who have not been circumcised) ought to learn how to draw back the skin and clean the part carefully. Later she should teach her boys how, quickly and skilfully, to perform the same duty for themselves. In this connexion circumcision is a great gain and ought, for moral and hygienic reasons, to be performed in many more cases than it is at present. Too sedentary a life is also to be avoided for little children, greatly for the same reason. For little baby girls especially long sitting, the more so if without occupation or interests, often leads through restlessness to untoward results. Plenty of activity, employment for the hands, and interests for the mind are the sovereign preventives of these dangers. Little children who are kept in good health, comfortably clothed, and busy with interests outside themselves are little likely to get into trouble with their own bodies.

With reference to the subject of children's dress in this connexion and its bearing upon morals, I should like to call attention to a little book by M. B. Synge, lately published by Messrs. Longmans, Green, & Co., called "Simple Garments for Children from Four to Fourteen." It gives loose and simple patterns for every necessary garment of such a kind that, while while looking fit and pretty, they in no way overheat the children or interfere with their natural activities or comfort. I believe a book on clothes for babies by the same author is now in preparation, which will be equally helpful, and I greatly recommend both to the attention of mothers and school matrons.

Modesty is an old-fashioned virtue with deep-reaching influences, which is often too much neglected during the nursery age. It comes very naturally to little children, and when wholesomely and reasonably fostered in babyhood is a strong defence in later years. There seems to be a tendency to think that among babies this is a thing that does not matter. The baby, however, will very soon be the little child, who will have to learn that the functions of his body are, except for purposes of legitimate grown-up supervision, matters which concern no one except himself. Omission of this kind of reticence in the teaching of children often leads to undesirable confidences and conversation with schoolfellows and others, a little later on. It is in the earlier time that we are most capable of accepting a firm, dogmatic belief that certain things are forbidden, and therefore are not to be done: that they are not nice, and therefore not to be thought of by decent people.

As an educational influence in the nursery plenty of baths, associated with cheerfulness and pleasantness, are of the first importance. The warm bath is for cleansing, but the cold tub is for vigour of nerve, and a great instigator of moral rectitude. Every healthy little child ought, somewhere between two and three years of age, to begin its cold morning tub, a sacrament which should be continued throughout life. It is best first begun in summer-time, but is not to be discontinued when the winter comes on. When necessary in cold weather it should be somewhat modified by the addition of a little warm water to bring it up to summer heat. Above all, it must be represented to the children in the light of an honour and glory, a grown-up promotion, for the child who starts his cold tub with enthusiasm, and comes to know its pleasant refreshment, is very unlikely later on to relapse into stuffy ways. It is the children who have nothing but warm baths till they are quite big who are apt to resent cold water, and omit its use whenever they can find an excuse.

Greediness and self-indulgence of every kind are also more easily nipped in the bud by the adverse public opinion up to the nursery than at later times. Food, and their likes and dislikes about it, ought not to be discussed before little children. Most of them will eat nearly all suitable food which is put before them without discussion. If it is found that in any instance there is a real dislike to something, nothing should be said, but the child should not be given the same dish again for a time. The chances are that when it comes again it will be eaten without notice. I often think of a woman of great experience who used to say, "With children, it is better not to call foods by any individual names. Just say, 'Here is your dinner,' and it will be eaten."

From these and other good physical habits, early established, steadily practised and kept up by the public opinion of the family, there generally emerges a wholesome and reverent attitude of mind towards the body and its functions. It comes to be seen in the light of a good servant, to be considerately treated, but not over-indulged. It is regarded with all due respect, but is in no way expected to get the upper hand or to be given precedence of the things of the spirit. From this attitude it is easy later on to come to realize that the body is, before all things, the temple of the living soul, and must be kept in every respect worthy of such a high use.

Hitherto all the teaching we have spoken of has been in-

direct. With a view to what is more direct every little child ought to have plentiful and varied opportunities of becoming familiar with the beginnings and development of plant and animal life. If he lives in the country there are seeds and frog-spawn and birds' eggs ready to hand, the lambs in the fields and many other young things to be interested in. Watching and knowing about these is the natural introduction to a later knowledge of his own physical origin and growth. Even in the town seeds like beans and peas, horse-chestnuts and acorns, are watched with great interest as they develop in damp sand or moss, and animals with life histories are not lacking. All these acquaint children with the processes of growth, so that later on when more personal questions are asked and human problems occur to them there are ready at hand texts and instances. They prepare, as it were, the mental background, so that it is ready to receive further knowledge.

There is a great variety in the different ages at which children begin to wonder as to their own origin and that of their little brothers and sisters, wanting to know where they came from and how they were made. With many children such questions are not asked within the age we are discussing. I think, on the whole, however, that the desire to know comes nowadays to younger children than it did formerly. It is as if the spirit of question and unrest which characterizes this time of the world had even invaded the nursery. This does not matter. The great point is that the questions should be asked of the right person, and that that person knows how to answer them. Ideally the mother is the right person, both because she has the right to the privilege, and because such questions are apt to have for their psychological moments such times of intimacy as most often occur, or ought to occur, between mother and child.

Whenever and of whoever such questions are asked, the thing of first importance is that the child should not be put off with either a joke or an untruth, but that he should be given an answer embodying as much truth as he is able to understand. A very little will generally satisfy. Little children are living in a world of marvels and unexpected happenings, and the thought that they grew in their mothers' bodies is no more astonishing, and much more comfortable and natural to them, than would be any of the common and sacrilegious fictions about gooseberry-bushes, storks, or doctors' bags. With a little child it is better never to go beyond an honest attempt to answer the question asked. When that is assimilated he will come for more. Wait till more is asked, and again answer truthfully, only be sure there is no such snubbing as will cause the child to go to some irresponsible person in his next difficulty. Be sure to explain to him that the reason we do not speak of these things except to those nearest to us is because they are so sacred, not because they are indecent — that indecency would consist in discussing them with strangers. If, at the first, the subject is treated as it ought to be, the child will ever after resent any allusion to such a thing from a low point of view or by the wrong people.

A SURE FOUNDATION.

By A. A. E.

Of the increasing numbers of students who enter our University and technical colleges each year, a large proportion of those taking up a scientific or (of doubtful individuality) technological career experience considerable difficulty in their first year's course of scientific study. Many of them have never previously entered upon this field of inquiry, even superficially, while others find their charted course very different from their previous experiences of the same subject. The explanation, perhaps, is to be found in the fact that our professors have adopted—and very wisely, too—a philosophical method of treatment of their subject. Principles are emphasized rather than facts; facts, indeed, are primarily not intellectually valuable as such, but as proofs, as illustrations in support of the fundamental principles and accepted theories of our science. The fall of Newton's apple was of itself a relatively unimportant event; its immortality is due to its having been the immediate means of the recognition of a fundamental scientific law.

So we secondary and technical masters and lecturers must not teach facts entirely as such; we, too, must endeavour more and more to build our lectures upon a truly philosophical basis, not merely to imitate our University colleagues, but to endorse what is believed to be the most rational and successful method of scientific training. Nothing is further from the mind of the sincere teacher of science than to make his pupils storehouses, encyclopædias of huge masses of *isolated* facts, without the network of principles and theories which binds those facts together, producing one well balanced whole.

By this philosophical treatment of a subject the personal element is introduced to a much larger extent than would be possible if the teacher acted merely as an animated textbook. And it is the personal element which is so valuable to the student. The presentation of matter to his mind must be made in a way which is derived from a personal appreciation of his own particular difficulties—difficulties which cannot be anticipated except in a very general way by the textbook, however excellent. The value of a lecture is very greatly enhanced if questions and free discussion on points *as they arise* are encouraged; the practicability of this course is, however, dependent on local conditions as to the size of the class, the type of student, and the time available. In fact the theoretical class must partake of the nature both of the lesson and of the lecture. It must be borne in mind, too, that evening students resent being treated as boys and girls at school, yet it is impossible to teach them exactly in the manner which one would adopt in a University, where the students give their whole time to their studies.

Although scientific theory should, therefore, find a prominent place in an elementary class, great care must be exercised that the work is not thereby made a drudgery. There is no need for this to be the case. By the use of practical illustrations, by the use of the optical lantern to replace much blackboard scribbling, by the judicious introduction of historical episodes, and of references to present-day problems and research, the interest of the student can be stimulated and kept at a high level. The mere idea itself of the prosecution of the study of the unknown, and possibly unattainable, through the medium of the investigation of the known and tangible is often sufficient to awaken a scientific spirit and mode of thought.

Another factor which should be continually kept in mind, especially in evening technical school classes, is the object and ambition of each individual student. Spheres of knowledge overlap, and it is across this common territory that one can often most conveniently pass from one branch of knowledge to another. An engineering student of chemistry will find greater attractions in, say, details of metallurgical and manufacturing processes with which he is made familiar in the course of his chemical studies than will the horticulturist, who in his turn will naturally apply himself with vigour to that part of chemical science which teaches him the composition of natural and artificial manures and the part played by the atmosphere in the nutrition of plant life. In this connexion, the advisability is emphasized of *individual* practical work in the laboratory, on a scheme which should be carefully systematized so as to meet the needs, as far as possible, of each student severally. An absolutely individual scheme of work can, of course, be attempted only under favourable conditions in the smallest of technical institute classes, and hardly at all in schools. In the schools this phase of the subject is not of such great importance, as in the majority of cases the scientific work is regarded as part of the general plan of mind-training rather than as a preliminary to any particular profession.

Perhaps the best method of teaching experimental sciences is a rational combination of the older descriptive conventions and of the newer heuristic method. Unless given a certain number of precise directions at the outset an elementary student *will* flounder, and floundering can be accomplished in such a manner as to be entirely valueless as an indirect means of acquiring knowledge. It is admittedly often advisable to allow mistakes to be made if, in the opinion of the teacher, valuable experience will be gained or a definite lesson learned thereby. Some portions of the work are, doubtless, best dealt with in the lecture-room before being studied individually in the laboratory; others, on the other hand,

are more advantageously introduced to the student in the laboratory so that he may exercise his own powers of observation and deduction before a fuller explanation involving theoretical considerations is presented to him.

In any event, cultivation of observation and common sense is an important factor, and the student must not be allowed to prosecute his studies in such a manner as to become a mere automaton, following with slavish exactitude the detailed instructions of his tutor. It is so easy to follow instructions: the appreciation of their significance is often too great an effort of mental gymnastics at the moment, and is left till a more convenient occasion—that is to say, is usually ignored. In the systematization of practical and theoretical work to this end, it is advisable to recollect that nothing is more discouraging than to have to work with incomplete, ill kept, and inadequate apparatus. Far better work will result from the provision of adequate supplies of chemicals, and a few pounds disbursed on the replacement of glass apparatus and the like, to which accidents will happen, even in the best regulated laboratories, will be well spent.

Of equal importance to the cultivation of observation and deduction is the inculcation of habits of precision and accuracy. With this end in view it is desirable to give even raw beginners experimental work involving measurement of length, area, volume, time and mass. In Chemistry in particular the tendency to require merely the preparation of common gases, salts, and so forth, should be to a certain extent though not altogether proscribed, and instruction given in the use of the balance, with elementary ideas of the limits of accuracy therewith obtainable, the determination of equivalents, solubilities, and similar values. Quantitative work, with its underlying principles, will provide a stable foundation for the superstructure of chemical theory and practice. Simple apparatus is used in the first place as a matter of course, but even then—or, rather, *especially* then—neatness in fitting up and in manipulation should be insisted upon. It is sometimes useful to repeat an experiment with various types of apparatus in order to give an insight into the variations in experimental error to be expected. Full original notes are a *sine qua non* to progress, difficult though they usually are to obtain from evening-class students. It should be explained that such notes are not intended for show, but for the students' own present and future use. They should be records of personal achievements and observations, and should therefore always be written in the laboratory at the time that the experiment is performed. They should, of course, be submitted to the tutor periodically for careful examination. Lecture notes are, perhaps, best regarded as private, and if so, hints as to how to condense a lecture and extract the salient points would be of great value. Homework, in the form of the writing of essays on subjects which cannot be obtained word for word from textbooks, and which perforce include students' own ideas and powers of invention, is of noteworthy service.

In fine, whatever the form of the characteristic features of the instruction, it must be of such a nature as fosters independent thought and judgment: it must turn out men, not machines, or we must confess that the true foundations of our scientific education have yet to be constructed.

THE COLLEGE OF PRECEPTORS.

HALF-YEARLY GENERAL MEETING.

The ordinary Half-Yearly General Meeting of the members of the Corporation was held at the College of Preceptors, Bloomsbury Square, on Saturday, March 28.

Sir Philip Magnus was appointed Chairman, and the Secretary read the advertisement convening the meeting.

The minutes of the last meeting, copies of which had been circulated among the members present, were taken as read, and confirmed.

The Report of the Council was laid before the meeting, and was taken as read, a copy having been previously sent to every member of the College. It was as follows:—

Report of the Council.

The Council beg leave to lay before the members of the College the following Report of their proceedings since the issue of their last Report:—

1. A Course of Twelve Lectures to Teachers on "Aids to Schoolroom practice" has been delivered by Prof. John Adams, and a Course of Twelve Lectures on "Educational Psychology" was begun on February 5.

2. The Christmas Examination of Teachers for the College Diplomas began on December 29, and ended on January 6. It was attended by 400 candidates—12 for the Fellowship, 95 for the Licentiateship, and 293 for the Associateship. Since the issue of the last Report the Diploma of Fellow has been conferred on 1 candidate, that of Licentiate on 28 candidates, and that of Associate on 97, who had satisfied the prescribed conditions. Practical Examinations for Certificates of Ability to Teach were held in October and February. 9 candidates were examined.

3. An Examination of a Foreign Teacher for a Certificate of Proficiency in English was held on January 12 and 13.

4. (*a*) The Christmas Certificate and Lower Forms Examinations were held on December 8–13, and were attended by 4,433 candidates. (*b*) For the Professional Preliminary Examination, which is to be held on March 10, 11, and 12, the number of entries is about five hundred and fifty.

5. Since the last General Meeting twenty members have been elected, and three have withdrawn from membership. The Council regret to have to report the death of the following members:—Mr. A. Compton-Ellis, L.C.P., Mr. T. J. Dymes, Rev. G. R. Green, Mr. T. Grosvenor, L.C.P., Mr. W. G. Walker, and Dr. Richard Wormell, F.C.P. Dr. Wormell was elected a Member of the College of Preceptors on November 3, 1866. He was Vice-President of the Council from February, 1879, to February, 1905, and President from February, 1905, to February, 1908. For ten years, from 1883 to 1893, he was Editor of *The Educational Times*, and he was for many years one of the College Examiners.

6. The introduction of lectures by distinguished lecturers on subjects of general interest at some of the Members' Meetings has met with the approval of members, who have shown their appreciation by increased attendance. The programme for the recent series of meetings was as follows:—October 22, Lantern Lecture on "Wonders and Romance of Insect Life," by Mr. Fred Enock; November 19, Lecture on "Irish Life and Song," by Miss Madeleine O'Connor; December 12, Lantern Lecture on "Camels and Sand, Arabs, and Veiled Women," by Mr. John Foster Fraser; January 21, Social Meeting; February 18, Lecture on "Peeps at Parliament through a Woman's Eyes," by Mrs. Philip Snowden. The last meeting of the series will take place on March 18, when the Rev. Dr. David, Head Master of Rugby School, will deliver a lecture on "The Teaching of English."

7. Improvements have been introduced in *The Educational Times*, and the Council have decided to increase the amount available for the payment of contributors, so as to make the paper more interesting.

8. In conjunction with the Private Schools Association, the Council have collected statistics with regard to the work and resources of a large number of Private Schools. The information thus collected will enable the Council to approach the Board of Education with proposals concerning the position of Private Schools in a national system of education.

9. (*a*) The method of keeping and presenting the College accounts has been rearranged, with the object of showing the financial position of the College more clearly than in former years.

(*b*) In view of possible contingencies, the Council have decided to assign 4 per cent. of the examination fees to a fund for pensions and compensation for the Office staff.

(*c*) The financial operations for the past year have been satisfactory. After due allowance for depreciation of leasehold premises, furniture, and Library, the income and expenditure account shows that there is a surplus of £541. 8s. 3d. Of this surplus, the Council propose to transfer £500 to the reserve fund.

10. (*a*) Representatives of the Council have taken part in the work of the Teachers' Registration Council, the Federal Council of Secondary School Associations, the Teachers' Training Committee, the Joint Scholarships Board, the Secondary, Technical, and University Teachers' Insurance Society, the Committee of the Conference of Educational Associations, the League of the Empire, the Joint Scholastic Agency, and the Joint Agency for Women Teachers.

(*b*) The conditions of admission to the Register of Teachers were made public on November 21 last. The Council, at their meeting on February 28, adopted a resolution expressing approval of the conditions so far as published. The regulations have been favourably received by members of the teaching profession and by the public press; and many associations of teachers have passed resolutions approving them. A very large number of applications for admission to the Register have been received, and over a thousand of these have been considered and approved.

(*c*) The Federal Council of Secondary School Associations held its Annual General Meeting at the College of Preceptors on Wednesday, February 18, 1914, when the following officers were appointed:—

Chairman, Mr. J. E. King, Clifton College; Vice-Chairman, Mr. T. E. Page; Treasurer, Miss Gadesden; Hon. Auditor, Mr. F. Ritchie; Hon. Secretary, Mr. R. F. Cholmeley; Secretary, Mr. H. Bendall. To the general satisfaction, it was announced that the Head Masters' Conference had decided to become members of the Federal Council, which is now composed of three representatives from each of the following nine bodies: The Head Masters' Conference, the Head Masters' Association, the Head Mistresses' Association, the College of Preceptors, the Private Schools Association, the Association of Preparatory Schools, the Conference of Catholic Colleges, the Assistant Masters' Association, and the Assistant Mistresses' Association. The Council fixed the same sum as last year—namely, Ten Pounds—as the contribution to be asked from each of the constituent bodies. Further, it resolved: (i) That this Council asks constituent Associations to urge their members to register as teachers; and (ii) that all leaving examinations, qualifying for Universities or professional courses, should be co-ordinated.

With reference to Paragraph 6, Mr. King expressed high appreciation of the new series of lectures and his hope that arrangements would be made for similar series in the future.

With reference to the statement in paragraph 10 to the effect that the Council had passed a resolution approving the conditions of Registration, the Rev. J. O. Bevan drew attention to the issue by the Teachers' Registration Council of a form headed "Application for acceptance of School or Institution for the purpose of the Registration of Teachers," and to the statement on the form that it was intended to provide information which would assist the Council to determine whether a school or institution shall be placed on its list or accepted by the Council. It appeared to him that the obligation on schools to provide the information asked for in the form constituted a supplementary condition of Registration, and he thought it was very important that the College should exercise caution in the acceptance of supplementary conditions.

Mr. Roscoe said he spoke not as Secretary of the Registration Council, but as a member of the College of Preceptors, who happened to know that what had been called a supplementary condition was not a supplementary condition at all. The question of the acceptance of schools for the purpose of registration was implicit in the conditions as originally prepared. The document which had just now been spoken of was nothing more than a necessary corollary of the Conditions of Registration as published. It was agreed that the experience of teachers should be regarded in considering whether they were fit for registration or not. That was the principle which was accepted by the Registration Council, and seemed to have been accepted by teachers also. They could not put on the Register a person who said: "I have been teaching for so long." They were entitled to ask: "Where have you been teaching? What is the nature of your experience?" If they accepted that principle, it followed that they must have some mode of inquiry concerning the place at which a teacher had been teaching. They must not put an inefficient private school, such as they knew did exist, such as no one could defend, in the same position as private schools of proved efficiency; they were bound to inquire as to their status. This inquiry form, which had been criticized as a supplementary condition, was submitted before it was published to the Chairman of the Council of the Private Schools Association, to Dr. Sibly, who was its representative on the Registration Council, to the Secretary, and to other important members of the Association, all of whom, without exception, said that the form of inquiry was necessary and was not in the least likely to harass anybody. It had been sent to a number of schools, and had been returned without comment or complaint of any kind. It was a corollary to the conditions and not a new condition. No new conditions had been issued, and, although at its last meeting the Registration Council made two modifications, these did not depart in the least from the principles of the conditions as originally issued. He should be sorry if the members of the College of Preceptors should form the opinion that the Registration Council issued supplementary conditions month by month, and was trying to deceive the teachers of the country. The Registration Council consisted of teachers; it had a large constituency of teachers, and the last people it wished to offend or harass were the teachers of the country, including the members of the College of Preceptors.

The Report of the Council was adopted.

The Treasurer, in introducing the accounts, pointed out that they were now presented in a new form, so as to enable members to see more clearly the financial position of the College.

On the motion of Mr. Eagles, it was resolved: "That this meeting heartily approves the new form of the accounts, and expresses its warmest thanks to all concerned in their production—viz., the Honorary Treasurer, the Auditors, the Secretary, the Assistant Secretary, and the clerical staff."

The report of the Dean, which was as follows, was adopted.

The Dean's Report.

In addition to the general statement of the examination work of the College during the past half-year, which has been embodied in the Report of the Council, I have now to submit to you some details concerning the Christmas Certificate and Lower Forms Examinations, together with extracts from the reports of the Examiners.

The Examinations were held on the 8th to the 13th of December at the following places in the United Kingdom:—Aberdeen, Aylesbury, Bath, Beccles, Bewdley, Birmingham, Blackpool, Bognor, Bournemouth, Brentwood, Bridlington, Brighton, Bristol, Cardiff, Carlisle, Carmarthen, Carnforth, Cheltenham, Chichester, Chulmleigh, Clapham, Crewe, Croydon, Ealing, Eastbourne, Edinburgh, Exeter, Falmouth, Glasgow, Gravesend, Harlow, Harrogate, Hastings, Hereford, Herne Bay, Inverurie, Jersey, Kennington, Knowle (Bristol), Leeds, Liverpool, London, Manchester, Margate, Minehead, Muswell Hill, Newcastle-on-Tyne, Newport (Mon.), Newquay (Cardigan), Newquay (Cornwall), Northampton, Norwich, Nottingham, Ongar, Plymouth, Portsmouth, Preston, Reading, Richmond (Surrey), Ripley, St. Leonards, Scarborough, Seaford, Selby, Sevenoaks, Sheffield, Shoreham, Southampton, Southend, Southport, Sunderland, Taunton, Torquay, Walton (Liverpool), Warrington, Weston-super-Mare, Wisbech, Woodford, Worthing, York.

The Examinations were also held at the following Colonial and Foreign Centres:—Constantinople; Batticaloa, Colombo, and Manepay (Ceylon); Rangoon (Burma); Harbour Island (Bahamas); Grenada, St. Lucia and St. Vincent (B.W.I.); Cala, Grahamstown, Johannesburg, Kimberley, Kroonstad, Krugersdorp, Mafeking, Oakford, Potchefstroom, and Uitenhage (South Africa); Accra (Gold Coast); Abeokuta and Lagos (S. Nigeria); and Zanzibar.

The total number of candidates who sat for the Certificate Examination was 3346—2686 boys and 660 girls.

The following table shows the proportion of the candidates who passed in the class for which they were entered:—

		Examined.	Passed.	Percentage.
Boys.	First Class	259	161	62
	Second Class	1009	652	65
	Third Class	855	673	79
Girls.	First Class	129	38	29
	Second Class	160	109	68
	Third Class	321	261	81

The above table does not take account of those candidates who obtained Certificates of a lower class than that for which they were entered, nor of those (613 in number) who entered for certain subjects required for professional preliminary purposes.

The number of candidates who sat for the Lower Forms Examination was 1085—661 boys and 424 girls. Of these, 532 boys and 356 girls passed, or 80 and 84 per cent. respectively.

Extracts from Examiners' Reports.

Scripture History.

Class I.—There was a very marked improvement in the Scripture work, due not only to more careful study on the part of the candidates, but evidently also to improved methods of teaching. The events of the reign of David, as related in II Samuel, were followed in their due proportion, and the figures of the great warriors and prophets of his reign depicted without confusion of names, and in the spirit of the Bible author. The few who took the general Old Testament history from B.C. 722–586 showed a very satisfactory knowledge, and wrote in good style. The answers to questions on St. Mark were often excellent, and mostly good even in the case of those who made this Gospel their secondary subject. Only in describing the incidents of the Crucifixion did the hold on St. Mark's narrative begin to fail. In Acts i–xvi there were some poor papers, and therefore a lower average of merit; but here, too, there were signs of more persevering study. Translation from the Greek was always well done, and the subject-matter of the four Epistles in Sections F and G was reproduced very creditably.

Class II.—It is gratifying to find that the importance of Scripture History is beginning to be more widely recognized. There was a large increase this time in the proportion of answers that would be appraised as "excellent," "good," "very satisfactory," and a corre-

sponding diminution in such as would come under the category "fair" or "poor"; while the actual failures were almost a negligible quantity. The improvement was found both in the New Testament and Old Testament papers. There is little to add, except to emphasize again the necessity of confining answers on a Gospel to the narrative contained in that Gospel. The incident recorded in St. Mark xvi, 1–8 was rarely related correctly.

Class III and Lower Forms.—Comparing this set of Scripture papers with the corresponding set last year, the examiner is of opinion that there is this time, on the whole, a better average. Speaking generally, on the literary side the handwriting of candidates in Class III was fairly good, the spelling not so bad as last year, the neatness and arrangement satisfactory. Every now and then came a set of untidy papers, followed perhaps by a good set, showing the value of good teaching. As regards the matter, the text, especially of St. Mark's Gospel, seemed in most cases to have been carefully read; the easy context questions were well done, and the narrative was fair; but only a very few gave good answers to such a question as that which asked for the serious points of difference between the teaching of Jesus and the current teaching of the Pharisees. All the papers which gained "Distinction" were excellent. Very few, however, appeared able to indicate any points of contrast between the characters of Esau and Jacob. It would, nevertheless, be a great mistake, in the examiner's opinion, to omit such questions; they guide teachers as well as stimulate pupils, and young candidates find it difficult to express themselves on paper, and so do themselves less than justice. A leisurely reading of a considerable number of papers shows how rare accurate observation is and how effectively the faculty can be improved by the guidance of a wise teacher. For example, if teachers would make their pupils close their books after reading such a narrative as "The Cure of Blind Bartimaeus," and describe what they have read, step by step, without hurrying too fast to the conclusion, it would not only have the general educational value of teaching them to observe what they read and also accurately register the result of their observation, but besides this, what is more important for the present purpose, it would increase the religious value of the Scripture. To borrow an illustration from Dr. Swete, the portrait of Jesus comes to us dimmed and dulled by the dust of centuries; it is the business of religious education to clean the picture and restore the image. As regards the Lower Forms papers, considering the youth of the candidates, the work was creditable, and in most cases painstaking. The easy context and narrative questions were well done. Here, again, the value of good teaching was seen, twenty failures sometimes following twenty passes. Though coming from such a wide area, the papers showed no sign of irreverence on the part of the candidates, and only once or twice vulgarity due to ignorance. On the whole, the examiner found the work was satisfactory and cheering.

English.

Classes I and II.—There is an improvement in Analysis of the sentence. But a large percentage still have no notion of clauses and their interrelation; these treat the matter as a long test in minute parsing. Parsing on the whole was good, though too much attention was bestowed on unessential diagnosis of what was obvious, while the crucial points were passed over in silence. The metaphorical use of words was not as a rule understood, though few lessons can be more important, or more far-reaching in their results. Discrimination of meanings of words and criticism of sentences were better done than anything else.

There was improvement in the Literature papers, as shown by the very large number of candidates obtaining more than half marks, and by the considerable percentage who came only a little short of "Distinction." The Juniors in particular seemed thoroughly interested in their play or book. A very large number wrote answers to both Literature and Grammar papers. In analysis and parsing, the papers of many of the colonial candidates were nearly perfect, and much superior to those of the average home candidate.

Class III. The general character of the work was praiseworthy. The parsing in many cases was very good, and most of the candidates were correct in the tenses of the strong verbs. The list of prepositions and the derivations were given with fair accuracy. Even the weaker candidates showed some knowledge of most of the questions. The Literature answers were very creditable. It was evident that the various books had been read diligently, since minor incidents were described with a fair amount of detail. The average essays were quite satisfactory in matter and expression. Several were of exceptional merit, and a few were awarded full marks.

Lower Forms.—The Grammar papers were generally satisfactory, evincing a competent knowledge of simple grammatical facts. The analysis was well done and the parts of speech were well discriminated. In the question on conjunctions, candidates were somewhat uncertain as to what really were joined by the conjunctions used; and "there" was nearly always called a conjunction. In the Dictation passage the spelling of the word "ascertain" baffled most of the candidates. While a very few papers gained full marks, too many gained no mark at all. The reproduction of a short story was, on the whole, very satisfactory. Salient points were seized, and the picturesque phraseology of the original was often repeated. Few specimens of handwriting were really first-rate. The text hand was often shaky, and down-strokes were not made thicker than up-strokes. Gaps between letters of the same word, and variations of the slope given to the letters, were specific defects in many of the specimens offered.

Lower Forms Literature.—About two-thirds of the candidates chose the Tennyson paper. Both papers were, with comparatively few exceptions, intelligently answered, and showed a good knowledge of the text. There was but little irrelevance in the answers, and marks were lost chiefly through failure to give sufficient details. A good many candidates took the word "grounds" in the first question of the Tennyson paper literally, and gave the answer, "At Flores."

English History.

Class I.—The answers of the best candidates were thoughtful, and showed careful study of a good textbook. Some of those who failed, or only just succeeded in passing, lost marks by not reading the questions carefully; for instance, instead of describing "some important political consequences of the Reformation in the sixteenth and seventeenth centuries," such candidates wrote about the causes of the Reformation or its history during the reign of Henry VIII. The least satisfactory answers were to questions on Anglo-Saxon times and on the history of the nineteenth century. Sketch-maps, too, were not often well done.

Class II.—The general standard of work seems slightly higher than on previous occasions. Certain questions had evidently been specially in the minds of teachers during the year, with the result that nearly all who attempted them gave clear and sensible answers. This was particularly the case with the questions on the Union with Scotland and the conflict in Ireland between James II and William III. This is a clear proof that careful teaching, even of a difficult subject, does produce its effect. The questions on famous men and women were, on the whole, well answered, though there seemed to be a widespread belief that Sir Thomas More was Archbishop, and that if nothing is known about any woman, it may pay to describe her as one of Henry VIII's wives! There was great and general confusion of vassals with villeins, and it was rarely that any candidate showed the importance of the inquiries through local representatives in the Domesday Inquest, or of the distinction between the general and personal summons to the Common Council. Dates of particular events were accurately given, but they were often placed in the wrong reign. Very many ascribed the Petition of Right to James I's Parliament, and the Reform Bill of 1832 and Catholic Emancipation to the reign of Victoria.

Class III and Lower Forms.—In both papers it was clear that the results were mainly due to the character of the teaching rather than to the qualities of the pupils. In the answers to both sets there were frequent batches of good papers with few or no failures and frequent batches of bad papers with few passes, and those only just over the minimum. In many cases both the good and the bad results might to a certain extent be attributed to the nature of the textbooks used, and to a still greater extent to injudicious direction in the use of them. The papers were, perhaps, a little difficult, but they were purposely so constructed as to favour candidates who had been trained to make an intelligent use of their textbooks and teachers' notes as compared with those who merely learned facts and "book tags" by rote. Some of the chief weaknesses common to both classes were the following:—(1) Inaccuracy and failure to distinguish between (*a*) persons of similar name or title, and (*b*) achievements and events of a similar kind. (2) Far too many candidates have no idea of the fundamental rudiments of chronology as the method of reckoning by centuries. No candidate ought to be ignorant (as so many were) of the limits of the fourteenth century. And while the examiner did not look for minute accuracy in dates (though, of course, credit was given for such), he thinks that it ought not to be possible for any appreciable number of candidates to confuse, *e.g.*, persons or events of Elizabeth's reign with those of George I or II. (3) Hardly any candidate displayed any power of writing biographical notes, *i.e.* of writing into a continuous narrative (or even into a tabular list) scattered notices of individual historical personages. There was scarcely a single really good account of Buckingham or Clarendon or Edgar or Cnut. Akin to this failing was the helplessness displayed in dealing with a series of historical events, *e.g.* Class III, A 6. Comparatively few gave a fairly exhaustive summary of the leading events, still fewer in chronological sequence. (4) Far too many candidates tried to cover their ignorance of important matters by narrating childish stories, *e.g.* Alfred and the cakes, Canute (Cnut) at the seashore. (5) A large number of candidates threw away marks by not carefully reading their questions, and so giving as answers information which was not required, and for which no credit was given; *e.g.* if the Examiner had required to be told the *provisions* of the Treaty of Utrecht or the actual facts of the Revolution of 1688 (James's abdication and flight and the offer of the crown to William and Mary) he would have asked for them. What he asked for was "the circumstances which brought about" these events. Similarly,

in Class III, C 2, the question was limited to *Ireland*. Nevertheless some candidates wrote about the Rebellion of 1715 and the South Sea Scheme and the trial of Queen Caroline. The general impression which the weaker sets of papers conveyed to the Examiner was that in too many cases the preparation of candidates in History had been entrusted to teachers who were not able to go behind their textbooks; that such preparation was frequently summed up in unintelligent learning by rote; and that there had been too little practice in writing out answers and want of sufficient direction in the art of handling an examination paper. There were, however, several sets of papers obviously representing each a particular school where good textbooks had been in use and the pupils trained judiciously and successfully in the art of using those textbooks and their teachers' notes. In these cases it was obvious that the candidates would have acquitted themselves with credit on papers much more difficult than those with which they had to deal. (6) Candidates often failed to realize the relative importance of details connected with a particular event. The most striking instance was in the answer to the question on the Gunpowder Plot. Hardly a candidate failed to give correctly the number of barrels of gunpowder in the cellar, but *not one in twenty* stated that the plot was formed by *Romanists*. There was nothing in the answers of the vast majority to show that it did not proceed from some personal animosity of Fawkes to the king.

Geography.

Class I.—With few exceptions, the papers were of only average merit. The chief faults noticeable were: (1) a tendency to discursive irrelevancy, very pronounced in B 18; (2) carelessness in reading questions—*e.g.* in A 3 "rift valley" and "crater harbour" were read as "rift," "valley," "crater," and "harbour," and so described; (3) very poor maps (in Questions A 10, B 12, B 13); (4) an anxiety to supply minute details instead of treating the subject broadly—*e.g.* in B 15 all the mountains and rivers of France and Spain were named in many papers with great care, and in the maze of these details the general purpose of the question was lost. Questions A 4 and A 7 were the most popular, and in very few instances well done. The causes of deserts and salt lakes were very imperfectly set forth. Compared with the work done by the Second Class candidates last July, the results were disappointing.

Class II.—These papers could hardly be considered satisfactory, as the knowledge shown of physical features, climate, and productions, even of the selected regions, was very weak, and great ignorance was displayed of the chief rivers, mountains, and countries of Europe. Hardly any could explain the seasons or give the usual diagrams found in books, though most attempted the question. The reasons for variation of climate were known, but few could apply their knowledge to Africa. By many, mountains and woods were made to attract rain, and the Gulf Stream, not only to warm North America and France, but also Africa and South America. Peru and Chili were given by about a third of those attempting the question as the wet parts of South America, and Brazil as the dry part; while the chief rivers and mountains of Europe, and even the relative positions of such countries as Germany, Austria, and Russia, were unknown to some. In consequence of ignorance of climate, cotton was repeatedly given as a chief export of Canada, sometimes also rice, while Boston was usually made to export tea. The maps of the special regions were very good, that of South America in particular. The physiography was not well known. The questions on latitude, longitude, the atmosphere, and contour lines were rarely attempted.

Lower Forms.—Although much of the work was good, the general standard was not high. There were indubitable signs here and there that antiquated systems of geography teaching and antiquated textbooks were still very much in vogue. The questions answered most satisfactorily comprised ordinary geographical definitions, the assigning of special manufactures to special towns, and any which could be found directly in the textbooks. The weakest work was visible immediately any "thinking" was called for, *e.g.* reasons for industries on plains, for sites of towns, and for climatic phenomena. The map-filling was fairly satisfactory. The most serious defects were: (1) Inability to mark highland *systems*. There was absolutely no notion of "shading," showing failure to use up-to-date physical maps; every map repeated the old-fashioned "caterpillar" and "herring-bone" type of mountains. (2) Great inaccuracy in the indication of rivers. They were constantly shown without either beginning or end, crossing and recrossing the "caterpillars" indiscriminately, and often traversing the country from coast to coast. (3) Carelessness in marking towns; a large number of candidates would neatly write the name of a town more or less in its proper position, and then omit the very necessary dot of location. There was a common tendency to ignore the instructions at the head of the paper, even though they were printed in italics.

Arithmetic.

Class I.—The work appears to be improving in style and neatness. The easier questions were usually done well, although a large percentage of candidates did not know how to approximate to a required degree of accuracy. The work on percentage error was poor; comparatively few realized that the error was reckoned on the true instead of the estimated lengths. A similar mistake was made in the question on percentage profit. Many mistakes were due to careless reading of the questions.

Class II.—On the whole the work, both in style and accuracy, was an improvement on former occasions. Approximation, areas and volumes, and the metric system require more attention. Many errors would be avoided and results much improved if all teachers would insist on calculations being done clearly in their proper places, and not in the margin of the paper, in microscopic and often illegible figures.

Class III.—The work was on the whole satisfactory, and in some directions an improvement on that of recent years. A fairly good number did all the questions correctly, and the percentage of distinctions was satisfactory. The number of valueless papers, although too high, is a diminishing number. The working of the papers, with few exceptions, was neat and well arranged.

Lower Forms.—This paper was on the whole well done. The chief weaknesses were in L.C.M. and multiplication of fractions. Candidates need to be reminded that the complete working of each item of the "bill" must be given, and that this should be done as neatly as the rest of the paper. With this qualification, the neatness of the papers as a whole was most praiseworthy.

Algebra.

Class I.—A great many candidates were not up to the standard of the examination, but the average answering was fair, and some schools sent in excellent work.

Class II.—The work sent up was of varying quality, but on the whole a satisfactory acquaintance with the rules was shown, and a fair percentage of the answers were correct. Many candidates whose work was otherwise good failed to solve the simple problems set. The alternative question set on graphical methods was not often attempted, and was seldom correctly done.

Class III.—The work was as a whole good, generally showing a sound grasp of the principles of elementary algebra and a creditable amount of success in applying them. There were comparatively few bad papers.

Lower Forms.—The straightforward questions on the simple rules were very well done, but there was much weakness in the substitution of numerical values. In the question on factors the second expression was found difficult of resolution, and only a few candidates were successful in the last two questions. The practice of *writing down* the altered signs of an expression before subtracting is confusing, and should be discouraged.

Geometry.

Class I.—The answering of the B pupils was much above that of the A pupils both in accuracy and in geometrical grip; but both sets showed a lack of logic, and there was much loose and muddled work.

Class II.—Throughout all the work on the three sections many figures were slovenly, and the lettering was anything but clear, in several cases corrections making the latter indistinguishable. It should be a rule that when a correction is needed the word or figure to be corrected should be cancelled and the word or figure written afresh. A: In Question 4 the wrong proposition was frequently written out. In Question 9 limitations were sometimes introduced which were not found in the enunciation. B: The figuring and lettering of Book III were better than those relating to Book II. C: In the practical part Questions 3, 4, and 5 needed much more care. The theoretical work was imperfectly known and indifferently set down.

Class III.—Though few riders were done by the average candidate, the bookwork was fairly well written out, and seemed to be understood. The practical work was generally well done, but many candidates who took the B paper were insufficiently acquainted with theoretical geometry.

Lower Forms.—The work was satisfactory.

Trigonometry.

Some excellent papers, but many seemed hardly to have advanced beyond right-angled triangles, and consequently wrote down such relations as $\sin A = \frac{b}{c}$ in solving the triangle of Question 7, in some instances making it greater than unity, and then actually finding the angle! Numerical blunders were very frequent. In solving triangles (such as in Question 7) few seemed to realize the importance of calculating all three angles, and so obtaining a check on their work.

Mechanics.

Class I.—The paper was well done by the majority of the candidates. The questions on Dynamics and Hydrostatics were answered better than those on Statics. Many candidates attempted to solve problems by the use of formulae which they obviously did not under-

stand instead of working from first principles, and many expressed their results in incorrect units. Candidates should remember that it is impossible to assess correctly the value of work which consists simply of numerical calculations without any explanation as to their origin or the principles on which they depend.

Class II.—Only six candidates took this paper. One, who obtained distinction, showed a thoroughly sound knowledge of the elementary principles of the subject, and two others obtained pass marks. The questions on Statics were the least well done, and the reasons for the action of the common pump were not properly understood.

Mensuration.

Class I.—The work was very satisfactorily performed, especially in respect of the first five questions. A difficulty arose in regard to Question 6, as many candidates did not realise the form of the figure. The character of Question 7 was discerned, though difficulty was found in the working. Question 8, *b*, was tried by but a mere fraction of the whole number.

Class II.—The results were somewhat disappointing and the working was uneven in the first three questions. Sufficient care was not exercised in the straightforward Question 4. In Question 5 answers were accepted both as to the volume of the metal and of the bore. Questions 6 and 7 ought not to have been found difficult had elementary formulae been mastered.

French.

Class I.—Regarding the answers as a whole it may be said that a high standard of careful and thoughtful work was reached. It is satisfactory to note that scarcely any candidate omitted to attempt each part of the paper. It is, however, very desirable that all candidates at this stage should make sure that their translation of the French passages gives reasonable sense and is expressed in intelligent English. In writing French the ordinary rules of agreement, which must have been known to all, were very frequently neglected.

Class II.—The majority of the candidates made tolerable sense of the French passage for translation; but more care should be given to writing good English, and no blanks should be left. The answers to the grammar questions were often well done, and showed a careful study of forms. Comparatively few candidates attempted the Free Composition, and those who did so showed no power of writing French. The translation of English into French was in many cases done with careful attention to construction and indicated a satisfactory vocabulary.

Class III.—The work was generally very slipshod. The grammar, even the commonest accidence, seemed almost unknown, and, although the translation from French into English was fair, no practical use of the materials supplied could be made in the translation from English into French.

Lower Forms.—The general results were unsatisfactory. The translation into English was creditable on the whole, but composition and grammar seem to have been absolutely neglected.

German.

Class I.—The German prose passage was well translated by the better candidates; the others showed great weakness in vocabulary and in grammar. Few were able to render the verse passage in good English; some gave the sense, but the style was anything but poetic. The grammar section was rarely well answered. Often there was carelessness, *e.g.* in giving the perfect when the pluperfect was asked for. The straightforward passage for translation into German was well rendered by the better candidates, but the attempts of many were marred by numerous mistakes in the elements of grammar.

Class II.—The main weakness was in the answers to questions on grammar and in translating grammatical sentences.

Class III.—Even the easy grammar questions were badly done, and the composition, except in a few cases, was very poor.

Lower Forms.—The answers to questions on grammar were the weakest part.

Dutch.

Class I.—There were six papers two excellent, one pass, and three failures. Only in one case was the translation into English of both prose and poetry good. The Grammar was very weak; the composition good.

Class II.—Half the candidates failed, chiefly owing to weakness in Grammar; in fact there were only three candidates who knew their verbs well. The translation from Dutch into English was very poor in view of the colloquial nature of the extract.

Class III.—Many candidates were struck by the idea that, as there must evidently be some connexion between Parts I and III, it would be a good plan to copy Part III and call it "Translation of Part I," and then copy Part I in places and relabel it "Translation of Part III." Hence many absolute failures. The rendering of the English sentences in Part III was certainly the worst part of the papers. The answers to the Grammatical Questions were much better, but the translation into English proved a stumbling-block.

Lower Forms.—The remarks made about the Third Class apply to the Lower Forms; hence nine failures and only five passes.

Welsh.

The work done in all stages showed a genuine improvement, though the improvement was not equal in all directions. Prose translation was on the whole well done, but the verse translation of the Senior Stage revealed a want of practice in translating from poetry. The compositions at the Senior and Junior Stages are improving, but in several cases insufficient regard was paid to the differences between literary and dialect Welsh. In Class III, where the Composition test was largely that of an intelligent use of the vocabulary supplied, there was often evidence of insufficient training. The weakest part of the work is still the Grammar on its practical side, where the application of rules to practice has to be considered. At the earlier stages especially it is in the study of concrete instances and in its relation to correct writing that the study of Grammar is most profitable. With an improvement in the direction of accuracy and a rational study of grammar the work shows no small promise.

Latin.

Class I.—The best part of the paper was the prepared translation; the unprepared translation was generally unsatisfactory. The grammar and composition were poor.

Class II.—The chief defect in the work submitted was the absence of a clear understanding of the elementary rules of syntax. The Examiner recommends that all candidates should make a point of practising carefully examples of such constructions as the Accusative and Infinitive, Final Clauses, and Indirect Questions. Students who fail to grasp these elementary principles cannot hope to deal successfully with either unprepared translation from Latin or Latin composition. The Accidence was fairly good, but candidates are warned against assuming that all words set for declension are in the Nominative Case. In dealing with unprepared pieces, candidates should remember that if their versions are unintelligible, self-contradictory, or meaningless, they *must* be wrong. They should endeavour first, from the words or sentences which they can translate with certainty, to arrive at a general idea of the subject of the passage: they should then proceed to study any harder words or sentences in the light of the whole, remembering that the passage is a complete whole, not a collection of separate sentences. Especially they should pay regard to punctuation, with a view to keeping separate in their final versions the words which form part respectively of principal and subordinate sentences. Candidates should avoid misspelling common terms like "genitive," "comparative," "participle."

Class III.—The work generally shows some slight improvement, but there are still very many candidates who are quite unfit for any examination. Candidates who take the Unseen paper generally produce better work than those who take the Caesar. The latter spend too much time on learning the translation of the set book, and fail in Grammar and Composition.

Greek.

Class I.—Except in the case of one candidate, the translations of the unprepared passages, and of the passages from the set books, were far from satisfactory, and the knowledge of accidence and syntax very defective. Two candidates attempted the sentences set for translation into Greek, but their versions were almost valueless.

Class II.—Four candidates failed almost entirely in all parts of the paper. Of the rest five did very fairly in translation, but, with one exception, were not sufficiently faithful to the original. One candidate answered the questions on accidence very satisfactorily, and four others acquitted themselves creditably. Of the five who attempted the Composition one showed a very fair knowledge of elementary syntax, and the work of another was promising. The Greek writing left much to be desired.

Heat and Light.

Class I.—The papers indicate very little advance upon the Junior standard. Question 2 was fairly well answered, but in answering Question 3 a surprising number of candidates dealt with a convex lens or even a concave mirror instead of a concave lens as required. Some excellent answers were given to Question 5 on the human eye. The laws for transfer of heat seemed to be unknown.

Class II.—This standard was well reached by the candidates, especially in the Light section. The composition of sunlight did not seem to be known. Questions 1 and 10 were generally answered successfully; so also was Question 4, except by one batch of candidates. Question 8 was scarcely attempted, and knowledge shown of experimental methods for determining latent heats was very poor.

Electricity and Magnetism.

Class I.—The papers were on the whole very poor. In Question 1 many thought that it was *retentivity*, not *susceptibility*, that had to be tested. In Question 3 no precautions were taken, such as the placing of the magnetometer in the meridian, and no absolute calculation was made. No knowledge was shown of condensers (Question 6), nor

were accumulators known in detail; nor were candidates acquainted with astatic galvanometers.

Class II.—Very few answers were given to the questions on current electricity, and none of those were correct. The other parts were fairly well answered, except Question 4. Candidates should be taught that iron filings do not provide a very satisfactory way of mapping magnetic fields.

PHYSIOLOGY.

There was much inequality in the merit of the papers, especially in Class I. Whilst many were exceedingly weak, groups of papers showed a sound knowledge of the fundamental principles of physiology, and gave evidence of good clear teaching. The average in the Second Class was far higher than in the First Class, and it would appear that in the schools the physiological instruction is being put into the hands of capable teachers.

BOTANY.

With very few exceptions the work was very poor. A lack of *definite* knowledge was apparent. It must clearly be understood that vague knowledge is worthless. The questions set were throughout very elementary, and did not require any extensive acquaintance with the subject. Nevertheless, the answers were of such a character as to indicate almost without exception that the candidates had failed to grasp the first principles of the subject. One word of commendation may be given. A larger proportion than usual of satisfactory longitudinal diagrams of the flower was sent in. The actual description is of quite subordinate importance to the diagrams—longitudinal and transverse. Throughout more attention must be given to the figures.

DRAWING.

Class I.—The very best papers were hardly so good as usual, but the bulk of the work was equal to the average of recent examinations. In Model Drawing the treatment of lines above the eye level proved a difficulty. Very often one or more of the horizontal lines of the group went very wide of the mark and betrayed absence of understanding of the value of a vanishing point. Good elliptical renderings of the circle drawn on the ground were not so common as could be desired—sometimes the curve was dragged out of shape to fit badly placed extremities of the legs of the easel.

Class II.—The group of objects set for the Model Drawing proved a rather searching test, and revealed some decidedly weak places. Failures in the proportional sizes and relative positions of the objects were common, and there was considerable lack of observation as to the position of the bricks on the board. There was also a good deal of weakness in the management of ellipses. Altogether the application of the laws of perspective seemed weaker than usual, although the number of distinctions awarded indicates that the problem was by no means too difficult for those who possessed sound knowledge. The Drawings from the Flat showed on the whole a slight falling off from the ordinary standard. The most common defects were faults in relative proportions of the parts, lack of "life" or "growth" in the curves, poor quality of line. There was evidence of too general an absence of methods of "setting out" the leading lines of the figure. In some cases the results arrived at merely by the light of nature were surprisingly good, but more often success might have been better organized by the candidate. Mechanical lining in is still responsible for a certain amount of mischief.

Class III and Lower Forms.—On the whole the exercises showed an improvement on those of former examinations, but a number of candidates are still prone to finish their exercises by overlaying all with a heavy and careless line. If it were realized by the students that a habit of clearing the work and improving the form would speedily result in the production not only of a better drawing but also of a better line, further improvement in the average of attainment would be manifest. Some candidates applied a species of shading to their Freehand exercises, thus obscuring their work and wasting valuable time which might have been devoted to improvement of the drawing. In the Model Drawings apparent rise of receding horizontal lines was at times much overdone. An efficient check for this error is a pencil held horizontally through one end of the line under observation so that the portion cut from the vertical line at the other end can be compared with the length of pencil intercepted. The tendency to make the base of a circular object too flat may be counteracted by demonstration of the maxim that in such objects an ellipse which is partly hidden is rounder than one which is entirely visible. It is not desirable that shading should be attempted at this stage. The use of rough paper is to be deprecated. The suitable paper for candidates is that which they are accustomed to use.

MUSIC.

The more elementary part of the work, *i.e.* intervals, scales, time, &c., was on the whole very fairly done; the harmony, on the other hand, was poor. Candidates seemed to have little idea of the correct treatment of chords and of chord progression. Modulation was also very weak, and in many cases not attempted at all. In their preparation candidates should have more practice in writing chords correctly in four-part harmony and in good harmonic progression.

The Chairman having appointed Mr. STARBUCK and Mr. WHITBREAD to act as scrutators, the meeting proceeded to the election of twelve members of the Council and three auditors. On the scrutators presenting their report, the following were declared to be elected:—

MEMBERS OF THE COUNCIL.

Prof. John Adams, M.A., B.Sc., LL.D., 23 Tanza Road, Hampstead, N.W.
G. Armitage-Smith, M.A., D.Lit., 3 Albert Terrace, Regent's Park, N.W.
Rev. J. O. Bevan, M.A., Chillenden Rectory, Canterbury.
Rev. J. B. Blomfield, 1 Mount Pleasant Road, Lewisham, S.E.
F. Charles, B.A., 22 Park Crescent, Church End, Finchley, N.
Miss E. A. S. Dawes, D.Lit., Weybridge Ladies' School, Weybridge.
Prof. W. E. Dixon, M.A., M.D., B.Sc., F.R.S., The Grove, Whittlesford, Cambs.
T. Hay, M.A., B.Sc., The Grammar School, Chelmsford.
A. Millar Inglis, Maidenhead College, Maidenhead.
E. J. Morgan, Castle Hill School, Ealing.
Rev. D. L. Scott, M.A., LL.D., Mercers' School, Barnard's Inn, Holborn, E.C.
F. A. Sibly, M.A., LL.D., Haywardsfield, Stonehouse, Glos.

AUDITORS.

J. Blake Harrold, F.C.R.A., A.C.I.S., 61 Streatham Hill, S.W.
H. Chettle, M.A., 76 Ridge Road, Hornsey, N.
A. E. C. Dickinson, M.A., LL.D., L.C.P., Grove House, Highgate.

A vote of thanks to the Chairman for presiding concluded the proceedings.

THE COLLEGE OF PRECEPTORS.

MEETING OF THE COUNCIL.

A MEETING of the Council was held at the College, Bloomsbury Square, W.C., on March 28. Present: Sir Philip Magnus, President, in the chair; Prof. Adams, Prof. Adamson, Dr. Armitage-Smith, Mr. Bain, Mr. Barlet, Rev. J. O. Bevan, Rev. J. B. Blomfield, Mr. Brown, Mr. Butler, Mr. Charles, Miss Crookshank, Prof. W. E. Dixon, Mr. Eagles, Mrs. Felkin, Miss Jebb, Miss Lawford, Mr. Longsdon, Mr. Maxwell, Mr. Millar Inglis, Mr. Ritchie, Mr. Rushbrooke, Mr. Starbuck, Mr. Vincent, Mr. Wagstaff, Mr. White, and Mr. Wilson.

Diplomas were granted to the following candidates, who had satisfied the prescribed conditions:—*Licentiateship:* Lalmadhab Raychaudhuri; *Associateship:* Erasmus William Benjamin Cole, Balmukand Jain, James William Pullen, Donald Reid, Atma Rama Sangal, Herbert John Wells.

Mr. Millar Inglis was appointed the representative of the College on the Council of the Educational Kinematograph Association.

On the recommendation of the Examination Committee it was resolved:—(*a*) that Domestic Economy be included in the list of subjects which may count towards a Certificate in any grade of the Certificate Examination; (*b*) that Italian, Zoology, and Geology be removed from the list of subjects for the Certificate Examinations; (*c*) that the following be appointed additional Examiners:—English, Miss E. Lee; Modern Languages, Lieut.-Col. J. G. R. Glünicke, B.A.; Classics, Mr. H. R. Tottenham, M.A.; Chemistry, Mr. S. W. Collins, B.Sc., F.I.C.; and that the Rev. F. G. Channon be appointed an additional Reviser in Mathematics; (*d*) that in the Certificate Examination Regulations for future years a notice be inserted to the effect that it is desirable that candidates offering foreign languages should show themselves acquainted with the terms recommended in the Report of the Joint Committee on Grammatical Terminology; (*e*) that the Examinations of Foreign Teachers for Certificates of Proficiency in English be held twice a year at dates to be fixed by the Dean, and not at dates selected by the candidates.

On the recommendation of the Finance Committee it was resolved:—(*a*) that the terms of the agreements relating to the Joint Scholastic Agency be revised, and that, with a view to

making revision possible in the immediate future, formal notice be given that the College intends to terminate the landlord and tenant Agreement and withdraw from the guaranteeing Agreement on September 29, 1914; (*b*) that a contribution of £10 be paid towards the expenses of the Federal Council during the current year.

A grant of £10 from the College Benevolent Fund was made to a life member of the College, and a pension of £26 a year was granted to the widow of a former life member.

The following resolution was adopted:—"That, in the opinion of the Council, it is desirable that the members of the College should apply as early as possible for admission to the Teachers' Register."

The following persons were elected Members of the College:—

Mr. W. S. Aucott, A.C.P., St. Dunstan's College, Margate.
Rev. W. G. Austen, Salesian School, Battersea, S.W.
Rev. F. W. Aveling, M.A., B.Sc., Glen Turk, Wimbledon Park Road South, Wimbledon, S.W.
Mr. J. R. Coulthard, B.Sc., L.C.P., 5 Gisburn Road, Hornsey, N.
Miss V. T. Down, A.C.P., St. John's School, Bexhill.
Mr. M. D. Tungate, A.C.P., Russell Hill, Purley, Surrey.

The following books had been presented to the College Library since the last meeting of the Council:—

By Blackie & Son.—Britain and her Neighbours, Books I and II; New Systematic English Readers, I and II; Rambler Travel Books (Africa); Claxton's Iron and the Iron Worker; De Quincey's English Mail Coach; Drum's Dramatized Recitations; Holinshed's England in the Sixteenth Century; Raleigh's Discovery of Guiana; Walker and Strachan's Needlework and Cutting Out; Walpole's Letters on France; Willson's Passages for French Dictation and Unseen Translation

By the Cambridge University Press.—Evans's Handbook of Précis-Writing; Kingsley's Heroes; Lubbock's English Prose, Parts I and II; Murison's Burke's Thoughts on the Cause of the Present Discontents; Thompson's Byron's Childe Harold's Pilgrimage, Lamb's Essays of Elia (First Series), Last Essays of Elia, and Pope's Essay on Man; Young's Primer of English Literature.

By Macmillan & Co.—Bridge's von Kleist's Prinz Friedrich von Homburg, and Word- and Phrase-book to the same.

By Methuen & Co.—Hilditch's Third Year Course of Organic Chemistry; Sage and Fretwell's Elementary Building Construction.

By J. Murray.—Draper's "Middle Method" German Course.

By the Oxford University Press.—Caunt's Introduction to the Infinitesimal Calculus; Dufferin's Letters from High Latitudes; Herbertson's Preliminary Geography; Holmes's Caesar, De Bello Gallico; Macaulay's Life of John Bunyan, and Life of Oliver Goldsmith; Shakespeare's Richard III; Wheeler's Palgrave's Golden Treasury, with Additional Poems.

By the University Tutorial Press.—Drennan's Chaucer's Parlement of Foules; Walker's Gospel of St. Matthew.

Calendar of University College of Wales, Aberystwyth.

Register of Veterinary Surgeons.

REVIEWS.

A National System of Education. By J. H. Whitehouse. (2s. 6d. net. Cambridge University Press.)

This is a book of the most satisfactory kind. Mr. Whitehouse has learnt the lesson that all public men have such an opportunity of learning—though not all of them take advantage of it—the lesson that people will not stand long-windedness in practical matters. We have here the whole subject of the administration of education dealt with in ninety pages: but every page counts. The arrangement is admirable. Everything is set out in the briefest terms consistent with perfect clearness. The reader is grateful for the generous supply of useful guiding "heads" to sections. Everything is made easy for him, and after the book has been read, it lends itself with special good nature to re-reading. It is intensely practical throughout, with the single exception of a two-page quotation from Ruskin, which, in a chapter on Art Teaching, is, we suppose, humanly inevitable. Whether we agree with Mr. Whitehouse or not we must admit that he in an unusually successful expositor.

A prefatory note informs us that "This book is issued with the general approval of the Executive Committee of the Liberal Education Group of the House of Commons, though they are not necessarily committed to its detailed recommendations." The work therefore has a special interest, as shadowing forth what may soon come within the realm of very practical politics. Fortunately it is not necessary to consider here any party question. There is indeed a chapter —as there ought to be—on the Religious Question, but we rather think if it gives offence at all it will not be to teachers. Its defect—if it can be called a defect—is that it regards the matter too much from the purely educational standpoint; which is a pleasing reversal of the ordinary plan of the politician.

The key-note of the whole is the desire for the solidarity of the teaching profession, and for the organic unification of the educational system of the country. Mr. Whitehouse declines to recognize elementary and secondary education as different in kind. He wants all education to be the same up to twelve years of age—he has evidently in view the American ideal, and, in fact, suggests means to "assist the creation of the common school"—and thereafter to have differentiation in all manner of schools, every one of which, however, is to have the right to call itself secondary. Most teachers will be pleased to find that he understands remarkably well all their shibboleths, knows thoroughly the technical distinction between teachers and masters, appreciates at its true worth the ingenious invention of the name "responsible teacher," perceives the inwardness of the two expressions *council school* and *county school*. In a word, he writes from behind the scenes. No doubt he sometimes appears to be an outsider, but that is only in pure theory. Most teachers will be surprised to find him speaking of the Montessori method as if it were something of a revelation. But on all the points that really matter the teachers will find Mr. Whitehouse thoroughly sound. They will back up all he says about the size of classes, the raising of the school age, the overlapping of different authorities, dual inspection, the source of teachers' salaries, the playground, the school bath, the school journey.

When he comes to controversial matters Mr. Whitehouse steers a very careful course. He is eminently fair to those who do not agree with him, he does his best to see their point of view, and to recognize the difficulties in the proposals he makes, but he never hesitates in the least as to the line that, on the whole, it is best to follow. It is rare to find a writer so decided without being offensively so.

One of the most useful chapters deals with what he calls the School Base, by which he means the allocation of a definite site for all the educational work of a neighbourhood, whether in town or country. In London, for example, these bases would be situated on the borders of some permanently open space such as a public park. Not only would the children have the benefit of the park, but by the combination of the playground space, that would have to be provided in any case for the schools, the pupils could have sufficient room for organized games that are impossible on the limited patch of inhospitable asphalt that is at present available. He recognizes all the difficulties that you and I are ready to point out, but he is ready with his "on the whole it is better than what we have at present." He further demands time for the gradual development of his Base plan. Probably he underestimates the difficulty of distance from home. It is not so easy as it looks. He has to say that "in most cases, with the assistance of train, 'bus, or tram, no child would have to walk more than a mile each way, and the child who is not in a condition to walk this distance is not in a condition to be educated at all." This is one of the few cases where the teacher will shake his head, and ask Mr. Whitehouse questions about the age of the pupils. A two-mile walk in London, plus a double train, tram, or 'bus ride, would materially limit the usefulness of the Base. Yet it should not be the teacher's part to throw cold water on the scheme of a practical man who, after all, is giving us a lead. We cannot but have sympathy with a member of Parliament who wants to *do* things, and who tells us that "what is desirable is that an ideal should exist, a start be made."

The Corner-Stone of Education. By Edward Lyttelton. (5s. net. Putnam.)

The sub-title of this book is "An Essay on the Home-Training of Children." Its author had been asked to undertake a book on the "moral" temptations of boyhood, but

soon found, on attempting the task, that he had entered upon a much deeper question: On what is character built? The thesis of the book, which is frankly addressed to professing Christians, is that the one hope for the moral regeneration of our country and empire is the rejuvenescence of Christianity. All that is wanted is that Christians should practise Christianity. That is all; or nearly all, for the Canon puts in a caveat about our motive in Christian practice. "Are we Christians in order to benefit men: or do we benefit men because we are Christians?" He has no difficulty in selecting the second alternative. He is entirely opposed to the common attitude of well meaning men that we ought to adopt and practise religion as the only means of supplying an adequate moral sanction. The true Christian cannot but benefit men: still, he benefits them because he is a Christian, and "can none other." Whether we agree with the Canon or not, on this point we must all rejoice in the single-mindedness of an author who in these days comes so definitely to the point on such a subject.

When it comes to the practical question of the training of character, our author is on more familiar ground, but he treats the threadbare subject in a most attractive way. The identity of will and character is insisted upon, and the natural conclusions drawn. Dr. Lyttelton makes no parade of authorities, but if he has not come across J. Payot's "Education de la Volonté" he will be glad to learn that the Frenchman works out on a psychological basis the position that is here reached in quite a different way. Teachers in particular will be pleased to know that this book carries the war into the enemies' country, and, so far from apologizing for the work of the public-school master, throws the blame of moral failings back to a much earlier stage. The author regards the period from fourteen to eighteen years of age "not so much as a time of critical struggle as one when the struggle is virtually over. . . . No mistake is so frequently made as to conceive of the later teens as ordinarily the most impressionable time of life. Much might be said for their being the very reverse." In consequence, it would appear that all the public-school master can do is to repair—so far as that is possible—the damage done in character formation at the earliest stages. It is the nursery and not the school that is the veritable *officina hominum*. The school is only the repairing yard. All this fits in with the theory of a certain psychological school with which Canon Lyttelton can have no sympathy; but it certainly fits into his own, and of the two theories every kindly disposed person will pray that the Canon's is right.

The book is optimistic in tone and artistic in method. The optimism is manifest throughout. In these days of dreary educational diatribes it is a joy to run through these heartening pages. Not that our author neglects the dark side. He has a long and intensely interesting chapter on Types of Failure, in which, by the way, we have an excellent illustration of the writer's artistic power. It reads like, indeed, it is, a "sort of" novel. Very early in the book the author gives an incident of a two-year-old boy named Jack stamping upon a hedge-sparrow which lay sprawling helpless on the lawn. The lesson of the incident is drawn, but Jack reappears in different connexions till he dies—a little short of eighty—as one of the "types of failure," in spite of the fact that he had his name in "Who's Who," had retired on a competency at fifty-five, and had played a good game of golf up to the end. Other types of failure are described with great clearness, and a refreshing absence of bitterness. There is a persuasive truthfulness about the whole book that makes the reader long to be convinced, even when his prejudice is for the other side. What could be better than the spirit of the chapter on Stimulus, with its admirable résumé of the points in dispute between the two schools? In writing this chapter the Canon has deserved well of his profession.

The book is full of insight and courage. It is not every clerical Head of a college who would dare to speak of "abortive exhortations from the school pulpit." Not many professional schoolmasters would have ventured on the observation that a weak-willed nurse may be of more value in the moral training of the child than one who is a "wise and strong person." Above all, there is the placing of pride in its true relation to sensuality. This will no doubt surprise many schoolmasters, but the Canon has made his point, and the result cannot but help to clear the air about questions on which too many teachers appear to have an obsession.

Education and the New Utilitarianism. By Alexander Darroch. (3s. 6d. net. Longmans.)

This is one of those disappointing books that borrow their title from the first chapter. A book on such a subject as "Education and the New Utilitarianism," by the distinguished successor to Prof. Laurie naturally attracts all who have an interest in the philosophical aspects of education. But on opening the book we find that it consists of eight lectures delivered at various times and places. The seven lectures that follow the title address deal respectively with the following subjects: — Democracy and Education, The Moral Education Problem, Two Ideals of Woman's Education, The Place of the Domestic Sciences in the Education of Girls, The School and the State, Is a Science of Education Possible? The Meaning and Educational Value of History. There is here no cohesion. It is true that the author suggests a common point of view running through his addresses, when he tells us that "the 'pragmatic' principles set forth in the opening essay, which gives the main title to the volume, are more or less consistently exemplified in the addresses which follow." But the book cannot be regarded as in any sense a unity.

On the other hand, there is no real need for the author's plea: "For any imperfection of form or lack of references the author craves the reader's kind indulgence on the ground that the addresses, as a rule, have been composed and written in the intervals of a busy practical life." The addresses are far from needing any apology as they stand. The very fact that Prof. Darroch is a man of affairs as well as a competent philosopher and an expert educationist, gives a special value to his views on the practical matters he deals with. The only matter of reference regarding which we have cause of complaint is the occasion on which each of the lectures was delivered. Only two such references are supplied, and in only one of these is the date given. In estimating the value of arguments on such subjects it is essential that we should know first of all to whom they were addressed, and then what evidence was at that time available to the public.

The first address is remarkably good, and makes a much needed correlation between the newer dynamic philosophy and the systematic study of education. Our teachers at present need just such information and criticism as are here offered. The same remark applies to the seventh and eighth addresses, but we must add the complaint that they should have been collated by the author. As it is, the reader must for himself read into the Problem of the Possibility of a Science of Education the teachings of history. Prof. Darroch is particularly clear, and not a little courageous, in his treatment of women's education. On moral education he moderates very wisely between the enthusiasts in the opposing camps; while in dealing with Democracy and Education he presents points of view that will probably be fresh to most of his readers, and that cannot fail to stimulate further inquiry. The individual addresses are excellent: our complaint is that they do not justify the title.

Dr. Montessori's Own Handbook. (3s. 6d. net. Heinemann.)

In answer to the natural question that most people will ask—why was this book published?—Dr. Montessori supplies the statement: "As a result of the widespread interest that has been taken in my method of child education, certain books have been issued, which may appear to the general reader to be authoritative expositions of the Montessori System. I wish to state definitely that the present work, the English translation of which has been authorized and approved by me, is the only authentic manual of the Montessori method, and that the only other authentic or authorized

works of mine in the English language are 'The Montessori Method' and 'Pedagogical Anthropology.'" So now we know. This work and the two others mentioned are the only real and original expositions: none others genuine: when you ask for a Montessori see that you get it.

To one who has already read "The Montessori Method" there is nothing new in this handbook, and Dr. Montessori frequently refers the readers of the "Handbook" to her larger work for fuller treatment of the matters dealt with. To one, however, who wants to get a rapid survey of the method, the present book can be cordially recommended. It is extremely well got up, the illustrations are excellent, the print large and clear, and within the 136 pages there is enough of Dr. Montessori's own personality to enable the reader to judge of the spirit as well as the letter of the method. An occasional introduction of the personal element, as on page 64 and again on page 65, adds a charm to the text. Naturally the book deals mainly with the apparatus, and the reader will find that the explanatory text is specially clear. Such explanations are indeed rather difficult for an author, but Dr. Montessori has avoided inconsistencies between the text and the illustration in every case except in the description of the pædometer on page 15, where the illustration does not agree with the statement "from the centre of which rise two wooden posts." One point that supplies a certain amount of interest to readers who know the literature of the subject is the occasional indication given of the authoress's awareness of certain lines of criticism. Her section on Freedom is calculated to allay the fears of some of her critics who have, through insufficient knowledge of her works, supposed that she would exercise no control over her pupils. Again, in her treatment of the Silence Game we seem to detect an answer to the common criticism that her method does not make provision for corporate work—"Here is a demonstration of the co-operation of all the members of a community to achieve a common end." Again, she has some satisfaction in pointing out "that the common belief that children love *bright and glaring* colours, has been the result of observation of children *without education.*" We welcome the section on the reading of music, and we note with satisfaction the intimation that Dr. Montessori's experiments in the continuation of her methods for older children are, in the case of arithmetic at all events, already far advanced.

OVERSEAS.

Some years ago, Prof. Moore, of Harvard, delivering some lectures in California, gave offence to a lady by his reply to her question: "Say, Professor, is this course to be given in Latin or in the American Language?" She was dissatisfied with the brief reply: "Madam, I lecture in English." Her dissatisfaction would have been shared by a writer in the March number of the *English Journal* (Chicago), who, under the title "On Teaching American," asks her readers to recognize that English is being taught in America largely as a classical language, and that the average young American is now such a composite creature that English has no longer the racial appeal that it had to his forerunner of even fifty years ago. "Give us," pleads the writer, "O ye gods of the college-entrance requirement list, more American authors!"

Still more interesting to our teachers of English at home is an article in the same magazine that gives us "A Rebellious Word on English Composition." It appears that the teachers of scientific subjects in the American schools, recognizing that their pupils have a very feeble grasp of English composition, have asked the teachers of English to co-operate with them in improving this state of affairs. But the rebellious word consists in a plain statement that the teachers of English understand the meaning of the word too well to be misled into a co-operation that consists in one man doing another man's work for him. It is maintained that what the science teachers want is to get the teachers of English to mark the papers for their colleagues. "Fifteen or twenty years ago the teachers of non-English subjects said: 'Omit the courses in the classical languages; give us the students in the laboratory and shop; we'll furnish them practical training and culture as a by-product.' To-day they are seeking a scapegoat for the illiteracy of their students. They have not made good their word, and they will not admit it. But there lies the responsibility just the same. 'If my students gits the idea, I don't care how they say it,' said an instructor from the shops, before his faculty associates when the question of English instruction was being discussed. That is a frank and manly, if illiterate, admission. It has been the unadmitted general attitude too long. That pedagogical *pronunciamiento* sent forth so many years ago should now come home to roost. The responsibility should be placed where it really belongs. The teachers of composition have a right to independence; they should never become subservient to any other departments in any institution. They should say to their fellows: 'If co-operation is to be the plan, you co-operate with *me.*'"

The March number of *Education* (Boston) is strong in showing the close connexion between the school and the home. It gives an enormous list of home occupations that the Board of Education of St. Cloud, Minnesota, give school credit for if properly certified by the parent. Each of the following, for example, will count for one-eighth of a school credit:—shingling or painting the house or barn; swimming 300 feet in one continuous performance; preparing one meal alone daily for three months; making a hat or cap; sleeping for one year in the open air or with open window; keeping a systematic savings bank account for one year, with regular monthly deposits. With this close connexion with home we are not so much surprised as we would otherwise have been to read elsewhere that "Pupils in the Dickerson High School, Jersey City, went to school from 4.30 in the afternoon to 10 o'clock at night on one occasion lately, in order that the adult members of their families might see the school plant in operation. The school program was carried out in the regular order, including the serving of the school luncheon about the middle of the session." Think of that, and ponder what follows. "Over fifteen thousand took advantage of the opportunity to see what the high school was actually doing."

"Farmers with a high school education make nearly double the average income of those with merely a common school education, and those who start earliest make the most profits, according to the Department of Agriculture's investigators." The investigators give us no clue as to what inference we are to draw from this remarkable statement. If they think it is an argument in favour of higher education they might do worse than inquire whether in the high schools they still give information about that cheerful little matter of *post hoc* and *propter hoc.*

In reviewing Dr. Parkin's "The Rhodes Scholarships," the critic of the (New York) *Educational Review* quotes the following passage:—"While the proportion of absolute failures has been small, the number of marked successes has not been large," and condenses Dr. Parkin thus: "the Rhodes scholar at the end or near the end of his home college course is not as accurate a scholar in the subjects he has studied as is the well trained boy fresh from an English public school, and intellectually as a rule is less thoroughly grounded than the best of the men with whom he is to come into competition." Then the critic goes on to explain what this really means. "It is not wholly that he is ill-instructed, although that is too often the case, as much as it is that he has been differently instructed, and instead of following out lines that are already familiar to him, he is abruptly called upon to take up others that are new."

In the April number of the same *Review* appears a cheerful account of an address by the well known neurologist, Dr. Charles L. Dana, who has been relieving his mind by disposing of the notion that the American schoolboy is overworked. The American boy on the average attends school for 185 to 200 days with a total annual number of hours of between nine hundred and a thousand, while the German boy attends school on 270 days and puts in a total of fourteen

hundred hours. Dr. Dana proclaimed that he did not know of any "group of human beings, except college students, whose minds were less overtaxed than schoolboys." The American boy is far on the way, if we are to believe Dr. Dana, to feeble-mindedness, and this is "largely because the American schoolboy is trained as a very tender plant. He is not allowed to work more than five days in the week, and not over four or five hours each day. He is not allowed, unless he is behind, to work during vacations, and at the slightest indisposition he is put to bed. There is a sort of sickly sentimentality toward the growing boy on the part of American parents." Well may the *Review* ask: "What can be done about it?" For in another part Miss Florence H. Hewit points out with some satisfaction that there is no possibility of America getting rid of the feminization resulting from the gradual disappearance of the male teacher, since the very men themselves are so effeminized that they cannot help perpetuating the feminine influence.

The *School Review* (Chicago) contains the drastic proposal by the Superintendent of Schools at Ithaca, that "the boy should be at school from 8 o'clock in the morning till 5 o'clock in the afternoon, six days a week. His elders put that time into work, and so should he." There is a rude awakening in store for the American boy, if Superintendent Boynton and Commissioner Claxton have their way. The summer vacation is in danger. The Commissioner regards it as "primitive and preposterous," a vestige of the time when pupils were required to work on the farm for three months, while to-day the problem "is to keep city boys from three months' contamination in the streets." The Americans are getting restive about the little use made of their school houses. They seem to want to keep them running all the year round. If the teachers cannot work for the whole twelve months, then let us have shifts of teachers. In any case it appears that the vacations must be cut down. The *Review* is not greatly concerned about the overwork of the teachers. It callously goes on to say: "Indeed, teachers in general have sentimentalized the belief that they are underpaid and overworked. Really competent teachers, fortunately, are ashamed to take shelter in such a subterfuge. Teachers do not work harder than workmen in other professions."

Prisons and Prisoners. Some Personal Experiences by Lady Constance Lytton and "Jane Warton," Spinster. (3s. 6d. net. Heinemann.)

This is a book that should be read by every student of human nature, for it gives an account drawn from personal experience showing how from indifference, through interest and hero worship, the martyr spirit is slowly evolved. It is not propaganda for the "Cause," and it leaves the unconverted as unconvinced as ever; but it shows the spirit underlying the many unaccountable acts of the adherents of the militant movement and makes the outsider realize how it is that many good women have actually felt impelled to break the law as a protest against injustice. It can never be right to do wrong, whatever may be the end in view, and the vote gained in this way would bring with it a curse rather than a blessing, but those in the thick of the battle seem to have lost sight of this elementary fact and to act rather as if the vote were an end in itself.

All those who are interested in social reform should also read this book without delay; they will find in it much food for thought. The author gives a clear and dispassionate account of prison conditions and prison life from the prisoners' point of view. Stress is laid upon the different treatment meted out to Lady Constance Lytton and "Jane Warton," Spinster, and we can but admire the courage that led to this experiment being undertaken and carried through for a week, until the deception was detected and the prisoner released on grounds of health. That forcible feeding is described goes without saying. The process is brutalizing and disgusting, and it is very doubtful whether the "Cat and Mouse" Act is a way out of the difficulty: it certainly prolongs the agony very considerably for the prisoner, though it may soothe the conscience of the officials. One good thing has certainly been achieved by the Suffragist prisoner. Now, for the first time, we have a mass of first-hand evidence on prison life and conditions collected by educated women, who write and speak freely of their experiences; from them we know that many of the hardships are not a necessary part of the discipline, and much has been altered recently in consequence of their agitation.

The Composition of the Iliad. By Austin Smyth, M.A. (6s. net. Longmans.)

"The object of this essay," says the author in his preface, "is to demonstrate that the 'Iliad' of Homer at one time consisted of 13,500 lines neither more nor less, divided into forty-five sections of three hundred verses each, with major divisions after the fifteenth and thirtieth of these; from which it follows that the remaining 2,193 verses, which appear in our texts, are more recent additions and ought to be removed." Mr. Smyth maintains that the division of the poem into cantos of three hundred lines was to provide, in the absence of writing, "an artificial aid to their preservation in the memory of man." The method pursued is to select points at which breaks in the narrative more or less marked occur, and to assume that they are the ends of cantos. The intervening portions are reduced by means of excisions and transpositions to the required length.

Since Wolf started the question of the composition of the Homeric poems there have been many attempts to distinguish the original poem from those later accretions which the text, as we possess it, undoubtedly contains. None rests upon a more insecure basis than the one before us, and it says much for the ingenuity of the author that he contrives to lend it some plausibility, though not, in our judgment, any probability. A numerical scheme seems to us the most unreliable of all instruments for the division of the poem into its component parts. Such division must proceed from no such arbitrary canon, but must be suggested by the relevance of each particular incident to the main plot. As Dr. Leaf admirably expresses it: "The growth of the 'Iliad' has been vital, not mechanical; and to a vital organism we must be satisfied to apply an approximate method, recognizing that the subtlety of the phenomena evades any mechanical criticism."

Let us assume that the poem was originally composed, as Mr. Smyth suggests, in cantos of three hundred lines. Surely such a device, meant to facilitate memory, would be eagerly laid hold of by the rhapsodists as a means of lightening their task, and would itself form no insignificant barrier to that wholesale interpolation which has almost certainly taken place. Again, to assign, as Mr. Smyth does, limits to the later passages to within half a line argues a degree of confidence quite unwarranted. Dr. Leaf, whose judgment is far more sound, says that he avoids "such a minute partition of different epochs as would convey a false impression of confidence in the power of critical analysis to assign every line to its own definite epoch." The truth is that Mr. Smyth would never venture to do anything of the kind were it not for his theory of the three-hundred-line canto. He has fallen into the fallacy of regarding that theory, not as an arbitrary proposal to be discarded unless borne out by the text, but as an inspired principle to which the text must be made to conform by fair means or foul. This attitude is betrayed repeatedly by such expressions as "the tercentenary test"; and on page 118 the author lets out the secret when he says: "And here I admit that there may be some doubt about the precise application of our doctrine, but not about the doctrine itself or about the limits of the canto; for there is both an excellent pause at the end of the book and a crowd of objectionable matter in between. But I confess that at this juncture I use the theory rather more freely as an independent test to fix the exact limits of this undesirable matter, instead of using it at once to corroborate and derive corroboration from existing grounds of suspicion." Could anything be more naïve? There is an excellent pause *at the*

end of the book and a crowd of objectionable matter in between; and with this data the three-hundred-line canto remains inviolable.

The quotation brings us to the question of the tercentenary pause. Now it seems clear that, if there is one thing requisite to establish this theory, it is that the pause at the end of the canto should be so definite and strongly marked as to leave no room for a suspicion, that it has been so fixed, rather to suit the exigencies of the theory than because the narrative really does break at that point. This is what Mr. Smyth says in reference to the pause which he places after IV, 402. "I dwell on this particular break because the reader might perhaps expect the pause to be placed twenty lines lower down, where the hosts advance to battle. But I am confident that the poet meant the cantos to be divided as is shown above." The ground for this confidence, which is in inverse proportion to the strength of the evidence, proves to be "the very sound of the line" (402), which "marks it out as one on which the voice should dwell." At this stage the author qualifies his doctrine with these words: "I do not maintain that the strongest pauses in the poem are always to be found after each three hundred lines; for it is quite as much the poet's object to prevent his narrative falling asunder as to mark its several divisions."

This qualification destroys the whole doctrine, for clearly there is nothing to establish the truth of it but the strength of the three-hundred-line pause. The author places one of his pauses after XXII, 215, where manifestly the break, if present at all, is after 213. The objection is admitted, and Mr. Smyth continues: "But I think that we can guess what the poet's intention was. He has told us just above how Hector's fate settled down in the scale, and so he throws the two verses into the previous canto as a sort of final ounce, thus overshooting slightly the even division of the incident to adapt his artistic form more closely to the facts described." To appreciate this sublime device the audience must have been counting the lines!

If further evidence is needed to refute this doctrine the most serious objection of all is that it requires us to regard the embassy in Book IX as part of the original plan of the poem against the judgment of the great bulk of scholars. It was rejected by Grote, by the late Sir Richard Jebb, and by Dr. Leaf, to name a few eminent critics, and the case against it is irrefutable. Mr. Smyth devotes some pages to an attempt to combat the accepted view, but we do not think that he in any way makes good his case. Such a theory as Mr. Smyth's would prove prolific in heresies. Indeed, in an appendix it is maintained that the "Odyssey" is composed in cantos of 450 lines, and we do not doubt that with equal enthusiasm a magic number might be found which would perform the same service for "Paradise Lost." Some of the transpositions and suggestions in the book are very acute and show much ingenuity. Apart, indeed, from the main thesis there is much to interest and stimulate. The Table of Cantos referred to on page 183 as "opposite page 184" will be found at the end of the book.

The French Revolution. From the Age of Louis XIV to the Coming of Napoleon. By Harold F. B. Wheeler, F.R.Hist.S., Member of the Historical Association. With a series of illustrations from authentic sources. (7s. 6d. net. Jack.)

The French Revolution is a very ample subject, and the immense accumulation of materials on every stage and every aspect of it increases the difficulties both of the historian and of the student. Mr. Wheeler traces the unfolding of the drama in its main lines, with very full knowledge and with judicious selection of points; so that his book will give the reader an excellent first grip of the essentials of the movement. There is much room for difference on the question of proportional treatment. For our own part, we should think that the sketch of the preceding periods of Louis XIV and Louis XV, and especially of the former, might well have been lightened by omission of some political details and strengthened by more pointed concentration on the specific elements that tended to produce the crisis. Mr. Wheeler is under no illusion as to the part really played by the "philosophers." "They did not bring about the French Revolution, as has been asserted: they hastened the inevitable and helped to plan the campaign, embodying in their writings what many felt who were incapable of clothing their thought in words." The importance of a firm conception of their personalities forbids us to quarrel with details not strictly necessary for the occasion. At the same time a quarter of the book is gone before we reach the first years of Louis XVI. The pitiful figure of this king is drawn with great care and success, and the fatuous counsels of the queen and the Court are vividly presented. The wretched conditions of the people, the insane extravagance of the Court, the hapless succession of financial expedients, are efficiently described. It is very remarkable to note how late the notion of a Republic was in dawning upon the excited minds of the nation: it seems as if the monarchy had the utmost difficulty in driving itself to destruction. It is needless to follow the various phases of the republican government; but we ought to remark specially that Mr. Wheeler has liberally illustrated public feeling and national conditions from letters and memoirs of the time, thus giving freshness and a strong sense of actuality to his narrative. The effective description of the personalities of the more prominent men and women is reinforced by many excellent portraits. Here and there, too, Mr. Wheeler furnishes the text of important documents that rarely find a place in general histories. Thus, he gives the text of the "Declaration of the Rights of Man," and he translates in full the insulting Proclamation addressed "to the People of France" by the Duke of Brunswick from the Russian headquarters at Coblenz, which helped to hurry the monarchy to its end. It is curious, in the light of later legislation in certain other countries, to note Necker's suggestion to the National Assembly that the King's absolute veto should be limited to two sessions of the legislative body. And some more modern politicians would place a mark against Dumont's opinion that "those whom you think to disarm by concessions only redouble their confidence and audacity." The illustrations, which number about eighty, are valuable, twenty-two of them being reproductions from the Hennin collection of prints and drawings in the Bibliothèque Nationale at Paris. The style is fluent and agreeable—except for occasional disfigurement by gratuitous looseness or carelessness.

GENERAL NOTICES.

HISTORY.

The French Revolution. By H. Packwood Adams, M.A. (3s. 6d. net. Methuen.)

This is a small book on a very large subject, but its value is in inverse proportion to its size. "It aims, above all, at making the story clear," and that is just what the reader wants—and so seldom gets. Mr. Adams has studied the subject with care, and he has marshalled the main facts in a thoroughly lucid and vigorous narrative. It is delightful to observe how definitively he has realized each step in the progress of the movement, how firmly he cuts away the less relevant details, and how effectively he presents each episode. Another purpose of the book, which the author considers not less important than a clear narrative, is "to indicate the present state of the chief problems associated with the great Revolution." Some useful pertinent matters are given in appendix, and there is a map of Paris in 1789.

Capitals of the Northlands: Tales of Ten Cities. By Ian C. Hannah, M.A. (6s. net. Heath, Cranton, & Ouseley, Fleet Lane, E.C.)

There is a strong suggestion of coming holidays in these descriptions of the principal cities of north-western Europe, and the holiday-maker in these parts will do well to take the volume in his bag. The capitals described are Thorshavn, Reykjavik, Trondhjem, Christiania, Roskilde, Copenhagen, Visby, Upsala, Stockholm, and St. Petersburg—three of them no longer capitals. Mr. Hannah is penetrated with the Norse spirit: his mind is full of the sagas of old, keenly interested in the countries, in their historical associations and in their

(*Continued on page* 252.)

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(*Continued on page* 254.)

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(1) *To write on one side only of the paper.*

(2) *To avoid putting more than one piece of work on a single sheet of paper.*

(3) *To sign each separate piece of work.*

17662. (W. N. Bailey and C. V. L. Lycett.)—Two conics S and S′ meet at A, B, C, and D, and the tangents to S at A and B meet at a point O on S′. If P is any point on S′, show that the point of intersection of OP and the polar of P with respect to S lies on CD.

Solutions (I) *by* G. G. Morrice, M.A., M.D., R. F. Davis, M.A., *and* L. B. Greaves ; (II) *by* W. F. Beard, M.A. ; (III) *by* C. E. Wright.

(I) Project the points C and D into the focoids so that the conics become circles.

Then, since A, B, P, O are concyclic,

$$\angle APO = \angle ABO = \angle AEO ;$$

therefore A, E, P, O are concyclic ; therefore

$$\angle OPE = \angle OAE = \text{a right angle},$$

i.e., OP is perpendicular to EP, and therefore parallel to the polar of P with respect to S.

Therfore this polar meets PO on the line at infinity, which is the line CD.

(II) Let OP cut S at Q, Q_1, and AB, CD at X, X_1.

Thus OP, XX_1, QQ_1 are point-pairs in involution ;

therefore $(X_1Q_1PQ) = (XQOQ_1) = -1$

(because the polar of O for S cuts AB at X) ;

therefore the polar of P for S passes through X_1.

(III) Take OAB as fundamental triangle, S may be taken as $yz - x^2 = 0$, and S′ as $f/x + g/y + h/z = 0$.

Then CD will be $fx + gz + hy = 0$ ..... (i),

also the pole of $lx + my + nz = 0$ ..... (ii),

for S is $(-l, 2n, 2m)$. Suppose this is P.

Then OP is $my - nz = 0$ ..... (iii).

(i), (ii), (iii) are concurrent if

$$-2f/l + g/n + h/m = 0,$$

which is exactly the condition that P should lie on S′.

13931. (Professor H. Langhorne Orchard, M.A., B.Sc.)—A sphere of radius a and mass m is placed within a "perfectly rough" hemisphere and suffered to descend. Supposing the sphere's centre to remain in one plane throughout the motion, find the friction.

Solution by C. W. Adams.

Assuming the hemisphere fixed with its axis vertical, let b be its radius, θ the inclination of the join of centres to the vertical, and R, F the normal and tangential reactions. Then

$$R \sin\theta - F\cos\theta = m(b-a)(\ddot\theta\cos\theta - \dot\theta^2\sin\theta),$$

$$R\cos\theta + F\sin\theta - mg = m(b-a)(\ddot\theta\sin\theta + \dot\theta^2\cos\theta),$$

$$Fa = m(2a^2/5)(b\ddot\theta/a).$$

Eliminating R and F,

$$g\sin\theta + (b-a)(\dot\theta^2\sin 2\theta - \ddot\theta\cos 2\theta) = 2b\ddot\theta/5.$$

Integrating, $2g\cos\theta + (b-a)\dot\theta^2\cos 2\theta + 2b\dot\theta^2/5 = 0,$

if the sphere is initially at rest in contact with the rim of the hemisphere.

Solving for $\ddot\theta$ and differentiating,

$$\ddot\theta = 5g\sin\theta\{5a - 3b - 10(b-a)\cos^2\theta\}/\{5a - 3b + 10(b-a)\cos^2\theta\}^2,$$

whence $F = 2mb\ddot\theta/5$ gives the friction. This can be easily modified for any other initial conditions.

17640. (R. F. Davis, M.A.)—Examine what inference may drawn from the equations

$$ayz - (bc/a)x^2 = bzx - (ca/b)y^2 = cxy - (ab/c)z^2 = t.$$

Solution by Professor R. Srinivasan, M.A., J. M. Child, B.A., B.Sc., *and others.*

We have $yz/bc - x^2/a^2 = \ldots = t/abc$. If we put

$$x/a \equiv \alpha, \quad y/b \equiv \beta, \quad z/c \equiv \gamma,$$

$$\beta\gamma - \alpha^2 = \gamma\alpha - \beta^2 = \alpha\beta - \gamma^2 = t/abc.$$

Taking the first two of these, we get $(\alpha-\beta)(\alpha+\beta+\gamma) = 0$; therefore $\alpha = \beta$ or $\alpha+\beta+\gamma = 0$. Taking the second and third members, we get $\beta = \gamma$ or $\alpha+\beta+\gamma = 0$; therefore the condition $\alpha+\beta+\gamma = 0$ makes the equations possible. The other condition $\alpha = \beta = \gamma$ cannot hold good unless $t = 0$. In any case it is impossible to obtain individual values for α, β, γ from the equations since the symmetry of the conditions makes one of the equations derivable from the other two.

Mr. Child draws attention to the assumption in the above proof that $xyzabc \neq 0$.

17651. (F. Glanville Taylor.)—I, I_1, ... are the in- and ex-centres of ABC ; I′, I_1', ... their images through the circum-centre O, so that O is the mid-point of II′, ... Prove that $(BI_3', CI_2') = X$ i the isogonal conjugate of I_1', and that A, I′, X are collinear.

Solution by Philip T. Stephenson, B.A.

Let D, F be the images of A, C.

The circle on CF as diameter is the nine-point circle of $I_1I_2I_3$, and therefore goes through the middle point of I_1I_2. At this point CF subtends a right angle and therefore $FI_1 = FI_2$.

Therefore FI_1, FI_2 are parallel to isogonals for $\angle BCA$.

Easily CI'_2, CI'_1 are parallel to these, and therefore are isogonals for $\angle BCA$.

Similarly so are BI'_3, BI'_1 for $\angle RBC$.

Therefore (BI'_3, CI'_2) = the isogonal of I'_1, called X.

The circle on DA is the same nine-point circle, and therefore goes through the middle point of II'_1.

Therefore, as before, DI, DI_1 are equal, and therefore parallel to isogonals for $\angle BAC$.

Therefore AI′, AI'_1 are isogonal for $\angle BAC$.

But so are AX, AI'_1.

Therefore A, I′, X are collinear.

(*Continued on page* 260.)

TUNGSTEN LAMP PATENTS

Important Notice.

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beg to inform the Trade and Public that arrangements have been completed whereby they

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,, ,, 23899* of 1904	,, ,, 23335 of 1906	,, ,, 23499 of 1909	,, ,, 20380 of 1911
,, ,, 20277* of 1904	,, ,, 18622 of 1906	,, ,, 2759 of 1910	,, ,, 27360 of 1911
,, ,, 27713 of 1904	,, ,, 3174 of 1907	,, ,, 8031 of 1910	,, ,, 28576 of 1911
,, ,, 27714 of 1904	,, ,, 8563 of 1907	,, ,, 15621 of 1910	,, ,, 873 of 1912
,, ,, 19379 of 1905	,, ,, 16503 of 1907	,, ,, 23121 of 1910	,, ,, 874 of 1912
,, ,, 20175* of 1905	,, ,, 16530 of 1907	,, ,, 24549 of 1910	,, ,, 2284 of 1912
,, ,, 23437 of 1905	,, ,, 16531 of 1907	,, ,, 1161 of 1911	,, ,, 3840 of 1912
,, ,, 3213* of 1906	,, ,, 5387 of 1908	,, ,, 1162 of 1911	,, ,, 11439 of 1912
,, ,, 6803 of 1906	,, ,, 8421 of 1908	,, ,, 8004 of 1911	etc., etc.
,, ,, 12325 of 1906	,, ,, 17350 of 1908	,, ,, 17722 of 1911	

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17633. (Professor J. C. Swaminarayan, M.A.)—Ox, Oy are two great circles on a sphere, cutting each other at right angles at O. P, P′ are any two points on the sphere. PM, P′M′ are drawn perpendicular to Ox, and PN, P′N′ to Oy. If $OM = x$, $OM' = x'$, $ON = y$, $ON' = y'$, the distance δ between P, P′ is given by

$$\cos\delta\left\{(1-\sin^2 x\sin^2 y)(1-\sin^2 x'\sin^2 y')\right\}^{\frac{1}{2}}$$
$$= \cos x\cos x'\cos y\cos y' + \cos x\cos x'\sin y\sin y' + \cos y\cos y'\sin x\sin x'.$$

Solution by Professor R. Srinivasan, M.A.

Let PM, P′M′ meet in y, the pole of Ox, and PN, P′N′ in x the pole of Oy.

In the triangle PNy,

$$\cos\angle PyN = \tan Ny/\tan Py,$$

i.e., $\cos x = \cot y\cot Py$;

therefore $\cot Py = \cos x\tan y$;

therefore

$$\sin Py = \frac{\cos y}{\sqrt{(\cos^2 y+\cos^2 x\sin^2 y)}} = \frac{\cos y}{\sqrt{(1-\sin^2 x\sin^2 y)}} \quad\ldots\text{(i)},$$

and
$$\cos Py = \frac{\cos x\sin y}{\sqrt{(1-\sin^2 x\sin^2 y)}} \quad\ldots\ldots\ldots\ldots\text{(ii)}.$$

Similarly
$$\sin P'y = \frac{\cos y'}{\sqrt{(1-\sin^2 x'\sin^2 y')}}$$

and
$$\cos P'y = \frac{\cos x'\sin y'}{\sqrt{(1-\sin^2 x'\sin^2 y')}},$$

and $\cos PP' = \cos Py\cos P'y + \sin Py\sin P'y\cos MM'$,

i.e.,
$$\cos\delta = \frac{\cos x\cos x'\sin y\sin y' + \cos y\cos y'\cos(x'-x)}{\sqrt{(1-\sin^2 x\sin^2 y)}\sqrt{(1-\sin^2 x'\sin^2 y')}}.$$

Hence the result.

17694. (G. W. Border, B.A.)—Solve the equations

$$x^2+2yz = a,\quad y^2+2zx = b,\quad z^2+2xy = -(a+b).$$

Solutions (I) *by* W. J. Ashdown; (II) *by* C. W. Adams; (III) *by* F. J. Turton *and others*; (IV) *by* Constance I. Marks, B.A. (Lond.).

(I) Adding the three equations and taking the square root,

$$x+y+z = 0,\quad z = -(x+y);$$
$$x^2-2xy-2y^2 = a \quad\ldots\ldots\ldots\ldots\text{(1)},$$
$$2x^2+2xy-y^2 = -b \quad\ldots\ldots\ldots\ldots\text{(2)},$$
$$4x^2+4xy-2y^2 = -2b \quad\ldots\ldots\ldots\ldots\text{(3)}.$$

From (1) and (2), $y^2 = x^2-\frac{1}{3}(a-b)$ ..... (4).

From (1) and (3),

$$3x^2+6xy = -(a+2b),\quad y = [-(a+2b)-3x^2]\div 6x \quad\ldots\ldots\text{(5)}.$$

Squaring (5), equating with (4), and reducing,

$$9x^4-6ax^2 = \tfrac{1}{3}(a+2b)^2,\quad x^2 = \tfrac{1}{9}[\pm 2\sqrt{(3a^2+3ab+3b^2)}+3a].$$

Put $\sqrt{(3a^2+3ab+3b^2)} = s$, $x^2 = \frac{1}{9}(\pm 2s+3a)$.

Similarly $y^2 = \frac{1}{9}(\pm 2s+3b)$, $z^2 = \frac{1}{9}(\pm 2s-3a-3b)$,

$x = \pm\frac{1}{3}\sqrt{(\pm 2s+3a)}$, $y = \pm\frac{1}{3}\sqrt{(\pm 2s+3b)}$, $z = \pm\frac{1}{3}\sqrt{(\pm 2s-3a-3b)}$,

giving four solutions. The three positive signs of $2s$ taken together give real, and the three negative signs give imaginary, solutions, because $2s$, taken positively, $\nless 3a$ and $\nless 3b$ and $\nless(3a+3b)$. But the double signs outside the surd must be taken so that $x+y+z = 0$, two alike and differing from the remaining one. Let $-(a+b) = c$. Then the unlike sign depends, for real solutions, on the greatest, algebraically, of a, b, c. When a is greatest, $x = \pm$, $y = \mp$, $z = \mp$. When b is greatest, $x = \pm$, $y = \mp$, $z = \pm$. When c is greatest, $x = \pm$, $y = \pm$, $z = \mp$. For imaginary solutions the same law applies if "greatest" be changed to "least." Let $a = 22$, $b = 1$, $c = -23$;

$$x, y, z, = \pm 4, \mp 3, \mp 1, \quad\text{or}\quad \pm\tfrac{2}{3}\sqrt{-3}, \pm\tfrac{5}{3}\sqrt{-3}, \mp\tfrac{7}{3}\sqrt{-3}.$$

(II) Adding, we get $x+y+z = 0$.

So we may put $x = \frac{1}{2}(p+q)$, $y = \frac{1}{2}(p-q)$, $z = -p$.

Substituting in the first two equations, we get

$$-3p^2+6pq+q^2 = 4a,$$
$$-3p^2-6pq+q^2 = 4b.$$

Hence
$$3\sqrt{3}p^2 = -\sqrt{3}(a+b)\pm 2\sqrt{(a^2+ab+b^2)},$$
$$\sqrt{3}q^2 = \sqrt{3}(a+b)\pm 2\sqrt{(a^2+ab+b^2)}.$$

[Rest in *Reprint*.]

17408. (C. E. Youngman, M.A.)—In the parabola

$$r(1+\cos\theta) = 2a,$$

consider the circle of curvature at 3θ, along with the circle through θ, $\theta+120°$, $\theta+240°$. These circles meet on the parabola; show that their second common point describes a circular cubic—a pedal of the parabola which envelopes their common chord: inverse to an ellipse of eccentricity $\frac{1}{3}$.

Solution by the Proposer.

If θ be the point $(am^2, 2am)$ on $y^2 = 4ax$, we have $m = \tan\frac{1}{2}\theta$; and similarly, for 3θ, $\mu = \tan\frac{3}{2}\theta$; hence

$$m^3-3\mu m^2-3m+\mu = 0 \quad\ldots\ldots\ldots\ldots\text{(i)},$$

Therefore $m+m'+m'' = 3\mu$; and since for any four concyclic points on a parabola the sum of the ordinates is zero, this is the condition that the circles $mm'm''$ and $\mu\mu\mu$ meet on the parabola, at -3μ.

Let the circle $mm'm''$ have for equation

$$x^2+y^2-2gx-2fy+c = 0,$$

then
$$a^2m^4+m^2(4a^2-2ag)-4afm+c = 0.$$

This must be the same equation as (i) multiplied by $(m+3\mu)$; *i.e.*,

$$m^4-m^2(9\mu^2+3)-8\mu m+3\mu^2 = 0;$$

therefore $2g = a(9\mu^2+7)$, $2f = 4a\mu$, $c = 3a^2\mu^2$;

and the circle $mm'm''$ is

$$x^2+y^2-ax(9\mu^2+7)-4a\mu y+3a^2\mu^2 = 0.$$

Similarly $\mu\mu\mu$ is

$$x^2+y^2-ax(6\mu^2+4)+4a\mu^3y-3a^2\mu^4 = 0.$$

Their radical axis $3x+4\mu y-3a\mu^2 = 0$ .....(ii)

touches the parabola $4y^2+9ax = 0$.....(iii).

The point on $\mu\mu\mu$ opposite to -3μ has $x+9a\mu^2 = a(6\mu^2+4)$, and $y-6a\mu = -4a\mu^3$; *i.e.*, $x = a(4-3\mu^2)$, $y = a(6\mu-4\mu^3)$. The projection of this point on (ii) is the second common point of the two circles, which therefore lies on the line

$$4\mu x-3y+2a\mu = 0 \quad\ldots\ldots\ldots\ldots\text{(iv)}.$$

This goes through the fixed point $(-\frac{1}{2}a, 0)$; therefore the locus is the pedal of (iii) for this point. Putting the origin here, and eliminating μ from (ii) and (iv), we get the equation

$$16x(x^2+y^2) = a(8x^2+9y^2);$$

which, by inversion, becomes $8x^2+9y^2 = \ldots$; an ellipse of eccentricity $\frac{1}{3}$.

17683. (W. F. Beard, M.A.)—Any straight line through the centroid of a triangle divides two of the sides in ratios whose sum is unity.

[It is possible to publish only a few out of the many solutions sent in.—Ed.]

Geometrical Solutions (I) *by* James Blaikie, M.A.; (II) *by* J. Macmillan, M.A., *and others*; (III) *by* F. G. W. Brown, B.Sc., L.C.P.

(I) Let AD be a median of ABC, G the centroid, and let PC′GQ meet AB in C′, AC in Q, and CB produced in P.

Draw DK parallel to CA to meet PQ in K.

Then, clearly, AQ = 2KD:

therefore

$$AQ/QC = 2KD/QC = 2PD/PC = (PB+PC)/PC = PB/PC+1;$$

therefore we have $AQ/QC-PB/PC = 1$;

but, since P is a point in CB produced, the ratio in which PQ cuts CB is negative, and thus we have proved that the sum of the ratios in which PQ cuts AC and CB is unity.

In the figure to Solution (I) for P, Q, D read A′, B′, and M.

(II) C′B′A′ is a line through the centroid G.

By Menelaus' theorem, $AC'/C'B.BA'/A'M.MG/GA = -1$;

therefore $AC'/C'B.BA'/A'M.\frac{1}{2} = -1$;

therefore
$$AC'/C'B = -2A'M/BA' = 2MA'/BA' = (BA'+CA')/BA'$$
$$= 1+CA'/BA' = 1-CA'/A'B;$$

therefore $AC'/C'B+CA'/A'B = 1$.

[Rest in *Reprint*.]

12777. (Professor Ignacio Beyens.)—Démontrer géométriquement la formule bien connue

$$(A\pm B^{\frac{1}{2}})^{\frac{1}{2}} = [\tfrac{1}{2}\{A+(A^2-B)^{\frac{1}{2}}\}]^{\frac{1}{2}}\pm[\tfrac{1}{2}\{A-(A^2-B)^{\frac{1}{2}}\}].$$

Solution by PHILIP T. STEPHENSON, B.A.

DC is tangent at C to a circle centre O; DK is parallel to CO,

$$2FH = DE + DK + 2DC$$
$$= DE + DK + 2\sqrt{(DE.DK)};$$

therefore

$$\sqrt{(2FH)} = \sqrt{(DE)} + \sqrt{(DK)}.$$

Put $OH = a$ and $OF = \sqrt{b}$;

therefore

$$\sqrt{[2(a+\sqrt{b})]}$$
$$= \sqrt{(FD-FE)} + \sqrt{(FD+FE)}$$
$$= \sqrt{[a-\sqrt{(a^2-b)}]} + \sqrt{[a+\sqrt{(a^2-b)}]};$$

therefore, &c. For $\sqrt{(a-\sqrt{b})}$ evaluate FG.

17630. (W. F. BEARD, M.A. Suggested by Question 17594.)—ABC is a triangle, P a fixed point in BC; Q, R points in CA, AB such that the triangles BRP, CPQ are equal. Prove that QR envelopes a parabola.

Solutions (I) *by* W. N. BAILEY *and* C. V. L. LYCETT (*jointly*); (II) *by* Professor R. SRINIVASAN, M.A.

(I) This Question may be generalized thus :—

Let AB, AC be two lines, and D, E, D′, E′ four points between them, and Q, R points on CA, AB such that the triangles ERD, E′QD′ are in a given ratio. Then, in general, QR envelops a parabola.

If DE, D′E′ cut AB, AC at B and C, then

$$QC/Q_1C = \Delta.QD'E'/\Delta.Q_1D'E' = \Delta.RDE/\Delta.R'DE = RB/R_1B.$$

It follows that Q and R form homographic ranges, and hence that QR envelopes a conic or passes through a fixed point. If QR envelopes a conic, then by making Q recede further away along AC, we also make R recede along AB, and hence the conic touches the line at infinity. It is thus a parabola.

To find when QR passes through a fixed point, let us first assume that A is not a self-corresponding point for the two ranges. Then AB, AC, BC are positions of QR, which can only be the case when DE, D′E′ pass through A, and then A is a self-corresponding point.

When A is a self-corresponding point for the two ranges, then either DE, D′E′ pass through A, and then QR is fixed in direction, or $\Delta ADE/\Delta AD'E'$ is equal to the given ratio. Then QR is always parallel to BC. In all other cases QR envelopes a parabola. In the given case, P must not be the middle point of BC, as then QR is always parallel to BC.

(II) Let A be origin, AC and AB axes.

Let $AQ = h$, $AR = k$.

Then QR is $x/h + y/k = 1$ ..... (I).

Now $\triangle RBP = \triangle QCP$,

i.e., $RB/CP = CP \sin C/BP \sin B$

(a constant)

$= \mu$ (say, for convenience),

i.e., $(c-k)/(b-h) = \mu$,

i.e., $h\mu - k = b\mu - c$.

This shows that the line (I) touches a parabola touching the axes of co-ordinates.

[$x/f + y/g = 1$ touches $\sqrt{x/a} + \sqrt{y/b} = 1$ if $f/a + g/b = 1$.]

The PROPOSER's solution is as follows :—

$$\triangle BRP/\triangle ABC = BR.BP/BA.BC,$$
$$\triangle CPQ/\triangle ABC = CP.CQ/CA.CB,$$

but $\triangle BRP = \triangle CPQ$;

therefore $BR.BP/CP.CQ = AB/AC$;

therefore BR/CQ is constant;

therefore Q, R generate homographic ranges;

therefore QR envelopes a conic touching AB, AC.

This conic is a parabola, for when R is at infinity Q is also at infinity; it also touches BC, for when R is at B, Q is at C.

(*Continued on page* 262.)

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QUESTIONS FOR SOLUTION.

17725. (Professor R. SRINIVASAN, M.A.)—Show that

$$\int_0^{\frac{1}{2}\pi} e^{n\cos y}\cos(3y+n\sin y)\,dy = \left(\frac{2}{n^2}-1\right)\sin n-\frac{2}{n}\cos n.$$

17726. (T. MUIR, LL.D.)—Resolve into factors

$$\begin{vmatrix} a_1 & a_2 & a_3 & x & . & . \\ b_1 & b_2 & b_3 & . & y & . \\ c_1 & c_2 & c_3 & . & . & z \\ x & . & . & a_1 & a_2 & a_3 \\ . & y & . & b_1 & b_2 & b_3 \\ . & . & z & c_1 & c_2 & c_3 \end{vmatrix}.$$

17727. (NORMAN ALLISTON.)—May there be two or more rational sided triangles on a common base and of a common height commensurable with that base?

17728. (J. G. CARMICHAEL.)—Give a general solution, for positive integral values, of the indeterminate equation $x^3y-xy^3=a$. *Note.*—If $a=71831760$ $(=2^4.3.5.7.11.13^2.23)$, three known pairs of values are 169 and 15, 169 and 161, 169 and 176. Are there any others? Find a when x and y have at least five pairs of values.

17729. (J. J. BARNIVILLE, B.A.)—In how many different ways can $(x^2+x\ \ 1)(y^2+y+1)(z^2+z+1)$ be expressed in the form A^2+3B^2?

17730. (Lt.-Col. ALLAN CUNNINGHAM, R.E.)—If

$$N_1=r^{r+1}-2r^r+1,\quad N_2=2r^{r-2}-r^{r-3}-1,\quad N_3=r^{r+1}-2r+1,$$
$$N_4=r^{r-2}+r-2,$$

prove that N_1, N_2, N_3, N_4 are all divisible by $(r-1)^2$, and that N_1 and N_3 are divisible by $(r-1)^3$ when r is even. *Ex.*—Taking $r=10$, factorize N_1, N_2, N_3, N_4 into prime factors.

17731. (S. KRISHNASWAMI AIYANGAR, B.A.)—If S_r is the sum of the squares of the reciprocals of the first r odd numbers, prove that

$$\frac{S_1}{3^2}+\frac{S_2}{5^2}+\frac{S_3}{7^2}+\ldots+\frac{S_n}{(2n+1)^2}+\ldots=\frac{\pi^4}{384}.$$

17732 (C. M. ROSS, M.A.)—If c_r is the coefficient of x^r in $(1+x)^n$, then the coefficient of x^ny^n in the expansion of

$$(1+x)_n(1+y)^n(x+y)^n$$

is

$$c_0^3+c_1^3+c_2^3+\ldots+c_n^3.$$

Is it possible to deduce the actual value of the sum of the cubes of the coefficients of $(1+x)^n$?

17733. (A. M. NESBITT, M.A.)—ACB is the diameter of a circle APQB of which C is the centre, and O is a fixed point on BA produced. The angle PCQ is constant, and OP, CQ cut in R. Prove that the locus of R is a circular quartic with two real asymptotes.

17734. (R. F. DAVIS, M.A.)—ABCD is a square, O its centre, and E the middle point of AB. Through O any straight line OPQ is drawn intersecting BC, AD in P, Q respectively. Draw EU bisecting the angle PEQ to intersect PQ in U. Prove that the locus of U is the cubic $x^2(y+a)=ay(a-y)$. What inference may be drawn by reciprocation with respect to E?

17735. (Professor K. J. SANJÁNA, M.A.) — One diagonal of a quadrilateral inscribed in a conic goes through a fixed point, and two opposite sides meet in a fixed point; find the envelope of the other diagonal and the locus of the point of meeting of the other two opposite sides. Enunciate the reciprocal theorem, and examine the case when the diagonal is fixed in direction.

17736 (C. E. YOUNGMAN, M.A.)—The tangents to a rectangular hyperbola, at the points where it cuts the nine-point circle of an inscribed triangle, are pedal lines in that triangle.

17737. (Professor E. J. NANSON.)—A B, C, D are the common points, and a, b, c, d are the common tangents of two conics S, S′. If the tangent to S at one of the points A, B, C, D passes through the contact of S′ with one of the lines a, b, c, d; show that the tangent to S at each of the points A, B, C, D passes through a contact of S′ with one of the lines a, b, c, d, and find the invariant relation between S, S′.

17738. (W. F. BEARD, M.A.)—ABC is a triangle, a parabola touches its sides at X, Y, Z; the tangents parallel to AX, BY, CZ meet BC, CA, AB respectively at P, Q, R. Prove that P, Q, R lie on the polar of the centroid of ABC.

17739. (Professor J. C. SWAMINARAYAN, M.A.)—A complete quadrilateral is formed by the four straight lines $y=0$ and

$$a_rx+b_ry+c_r=0\quad(r=1,2,3).$$

Prove that the circles on the three diagonals as diameters are coaxal, the equation of the common radical axis being

$$\begin{vmatrix} a_1B_1, & b_1C_1, & 1 \\ a_2B_2, & b_2C_2, & 1 \\ a_3B_3, & b_3C_3, & 1 \end{vmatrix} x-3\Delta a_1a_2a_3y+\begin{vmatrix} a_1C_1, & c_1A_1, & 1 \\ a_2C_2, & c_2A_2, & 1 \\ a_3C_3, & c_3A_3, & 1 \end{vmatrix}=0,$$

where the capital letters denote the minors of corresponding small letters in the determinant

$$\Delta=\begin{vmatrix} a_1, & b_1, & c_1 \\ a_2, & b_2, & c_2 \\ a_3, & b_3, & c_3 \end{vmatrix}.$$

17740. (W. L. MARR.)—If

$$\lambda=\tfrac{1}{3}(B-C),\quad \mu=\tfrac{1}{3}(C-A),\quad \nu=\tfrac{1}{3}(A-B),$$

where A, B, C are the angles of the triangle of reference; show that the line $\alpha\sin(\lambda+\epsilon)+\beta\sin(\mu+\epsilon)+\gamma\sin(\nu+\epsilon)=0$ is inclined at an angle ϵ to the line

$$\alpha\sin\lambda+\beta\sin\mu+\gamma\sin\nu=0.$$

Show also that the line

$$\alpha\sin(\lambda+\epsilon)+\beta\sin(\mu+\epsilon+\tfrac{2}{3}\pi)+\gamma\sin(\nu+\epsilon+\tfrac{4}{3}\pi)$$

is inclined at an angle ϵ to the line

$$\alpha\sin\lambda+\beta\sin(\mu+\tfrac{2}{3}\pi)+\gamma\sin(\nu+\tfrac{4}{3}\pi)=0.$$

ϵ is any angle.

17741. (Professor NEUBERG.)—Sur les côtés d'un triangle ABC on construit extérieurement les triangles équilatéraux BCA′, CAB′, ABC′. Déterminer les coordonnées normales (1) du centre de gravité de l'aire totale A′CB′AD′B, (2) du centre de gravité du périmètre de cette aire.

17742. (H. D. DRURY, M.A.)—The line joining the middle points of the diagonals of a quadrilateral inscribed in a circle, cuts the sides of the quadrilateral, or the sides produced, in four points, whose distances, taken in order, from the point of intersection of the line with the third diagonal are in continued proportion.

OLD QUESTIONS AS YET UNSOLVED (IN OUR COLUMNS).

14567. (H. W. CURJEL, M.A.)—Construct with ruler and compasses a harmonic pencil O (AC, BD); the angles AOD, BOC being given.

14571. (Professor MORLEY.)—Prove that the sum of the cubes of the coefficients in the expansion of $(1-x)^{-p}$ is, when convergent,

$$\cos\tfrac{1}{2}(p\pi)\,\Gamma(1-\tfrac{3}{2}p)/\{\Gamma(1-\tfrac{1}{2}p)\}^3,$$

p being real or complex.

14587. (G. H. HARDY, B.A.)—Prove that the line element of a sphere of unit radius may be expressed in the form

$$ds^2=\{\mathrm{dn}^2\alpha-\mathrm{dn}^2\beta\}\,(d\alpha^2-d\beta^2);$$

that the equation of a circle on the sphere is

$$p\,\mathrm{sn}^2\tfrac{1}{2}(\alpha-\beta)\,\mathrm{sn}^2\tfrac{1}{2}(\alpha+\beta)+q\,\mathrm{sn}^2\tfrac{1}{2}(\alpha+\beta)+r\,\mathrm{sn}^2\tfrac{1}{2}(\alpha-\beta)+s=0;$$

and that the condition that two circles should cut at right angles is

$$ps'+p's=qr'+q'r.$$

14620. (SRISH CHANDRA GHOSH, M.A.)—A comet of very small dimension and mass M is projected to move in a parabola (parameter $=4a$) under the action of a focal attractive force $(=\mu u^2)$, from a point distant R from the focus. Another particle, mass m, is then shot off from the focus at an angle θ to the principal diameter, and strikes the comet with velocity v. Investigate the subsequent motion of the comet, the coefficient of restitution being ϵ. Supposing these elements to be in C.G.S. units, and a fraction k of the energy dissipated by collision to be spent in thermal effects, calculate the heat generated.

14726. (R. CHARTRES.)—If the perimeter of a variable triangle ABC be constant, find the mean value of the maximum value of the minimum Σ (FA), F being Fermat's point.

NOTICE TO CORRESPONDENTS.

It is requested that all Mathematical communications should be sent to the Mathematical Editor,

Miss CONSTANCE I. MARKS, B.A., 10 Matheson Road, West Kensington, W.

THE LONDON MATHEMATICAL SOCIETY.

Thursday, April 23, 1914. — Prof. A. E. H. Love, F.R.S., President, in the chair.

Messrs. J. Proudman and C. Jordan were elected members.

The President referred to the death of Prof. G. Minchin, who had been a member of the Society for nearly forty years.

Major P. A. MacMahon, F.R.S., read the following papers:—

(i) "On a Modified Form of Pure Reciprocants possessing the Property that the Algebraical Sum of the Coefficients is Zero."

(ii) "On Lattice and Prime-Lattice Permutations."

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EXAMINATIONS.

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Practical Examination for Certificates of Ability to Teach.—The next Practical Examination will be held in October, 1914.

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CONTENTS.

	Page
Leader: The University of London	273
Notes	274
The King at Leys School—The Budget—New Inspectors—"Organize your Secondary Education"—A Survey of Secondary Schools—The Result of a Survey—Sir Philip Magnus on the University of London—Proposals for Reform—Progress—Pensions—"The Facts of Life"—Salary Scales and Dismissal—Advertising Privileges for Members—This Number—The Next Step in Education—Foreign "Assistants"—Thanks to Lady Magnus.	
Summary of the Month	277
Music and Relaxation. By Herbert Antcliffe	278
Careers for Girls. II: The Teaching Profession. By Prof. Edith J. Morley	280
The Connexion between the Physical, Mental, and Moral Development of Children. By M. C. Scott	282
The Lighter Side of Pedagogy	283
Association of Assistant Mistresses in Public Secondary Schools	284
Correspondence	284
The Workers' Educational Association; Private Schools Renamed; Compulsory Medical Treatment.	
The Next Steps in Education Conference	285
Conference of Teachers of English at Stratford-on-Avon	286
Current Events	286
Prize Competition	287
Sane Sex Teaching. III: In Boys' Schools. By Dr. Eric Pritchard	289
The Village School	291
The College of Preceptors:—	
Meeting of the Council	292
Examination of Foreign Teachers for Certificates of Proficiency in English	292
Reviews	292
Chignett Street, a Provided School (Neuman); A Path to Freedom in the School (MacMunn); School and Life; Overseas; Women Workers in Seven Professions (Morley); Sophocles in English Verse (Way); Squaring the Circle (Hobson); Cavour, and the Making of Modern Italy (Orsi).	
General Notices	298
Publications Received	304
Mathematics	308

The Educational Times.

THE UNIVERSITY OF LONDON.

ADAPTING an often used phrase, we might say: Happy the University that has no (political) history. For many years the constitution of the University of London has been one of the burning questions in the field of educational administration. Ideally the students of a University, as well as the teachers, should, sheltered within its walls and undisturbed by public opinion, pursue their researches after wisdom and knowledge. And, in spite of outcries in newspapers and on platforms, this is precisely what has happened in London during the past year, if we may judge from the report that Sir Henry Miers has just issued. The valuable work that the University is doing for London and the country has been steadily carried on, and has also been extended.

In the twelve months under review nearly twelve thousand students have been examined. The figures show that this is a falling-off by about five hundred compared with the numbers for the previous year. The difference is accounted for by the decreased entry from the provinces. This is natural and, indeed, to be desired. It indicates the growing success of the newer provincial Universities. Each new University that is opened not only brings the opportunity of further education to more students, but also, and rightly, withdraws from London students who now find the local University accessible. Rather more than half of the students who presented themselves for examination in the different stages were successful. The number of those who obtained degrees and diplomas was 1,301 out of 1,807 who were examined; of these examinees 900 were internal and 907 external. The total number of internal students is now 4,888, two hundred more than in the preceding year.

It is exceedingly satisfactory to find that the stream of benefactions continues to flow. The largest in amount is that given by Sir Hildred Carlile to Bedford College—a hundred thousand guineas. Many other benefactions and grants are recorded, either from individuals or from Local Authorities.

Changes have taken place in the organization of teaching. Six new University Chairs have been established, and have been filled as follows:—Dr. G. Barger, Professor of Chemistry at Holloway College; Mr. E. H. Lamb, Professor of Civil and Mechanical Engineering at the East London College; Miss C. F. E. Spurgeon, Professor of English Literature at Bedford College; Dr. C. G. Seligmann, Professor of Ethnology at the London School of Economics; Sir Sidney Lee, Professor of English Language and Literature at the East London College; and Mr. E. R. Matthews, Chadwick Professor of Municipal Engineering at University College. Sir Henry Miers "refers with special satisfaction to the co-ordination of the work of the University and the Imperial College of Science and Technology in the matter of advanced studies."

It is announced that from next Christmas King's College will, like University College, become definitely co-educational, by the transfer of the Women's Department to the College in the Strand; while the Home Science Department will be transferred to new buildings on Campden Hill. A school of Oriental Studies is about to be established. Two new subjects, education and psychology, have been instituted for the M.A. Examination. The new scheme for the East London College has come into operation. This institution "will henceforth be carried on under conditions more suitable to its rank as a school of the University in three faculties."

The report tells us little about the future of Goldsmiths' College, though that future "has continued to be the subject of anxious deliberation"; but we learn that the work of the training department has been maintained with unabated activity. There are now seven flourishing hostels connected with the College.

The Extension Board of the University conducted three successful gatherings last summer: the Holiday Course for Foreigners—"which has now become a permanent feature of the Board's work"; a special Holiday Course for English and Foreign Teachers of Modern Languages at Ramsgate; and a School of Town Planning at the Hamp-

stead Garden Suburb. The University well supports the tutorial classes for the higher education of working people. No less than thirty of these classes are organized in connexion with the University of London.

The scheme for the interchange of students with foreign Universities continues to progress, and satisfactory arrangements with this object have been made with the Universities of Paris, Montpellier, and Caen.

Sir Henry Miers pays a merited tribute to the value of Lord Avebury's work for the University; and he welcomes the knighthood bestowed on Dr. McClure, "an eminent head master, and a man who had won distinction in three Faculties"; as well as the viscounty granted to Mr. James Bryce, whose Fellowship of the University dates back for twenty years.

The report is naturally discreet on the two points about which the general public show the most curiosity. We are told that the Departmental Committee has held numerous conferences in reference to the work of the University, "but no action has yet been taken in any way affecting the ordinary progress of that work." The other question is the choice of a site. On this subject the Principal "has nothing to report beyond what has already appeared in the public press."

Sir Henry sums up the year's work in these words: "The manifold activities of the University have not only been fully maintained, but have increased and developed in many directions. Not only does the normal teaching and examining work—both internal and external—continue to grow, but new duties and responsibilities are undertaken by the University, which endeavours to respond to every genuine educational demand, whether local or Imperial, that it can reasonably satisfy."

NOTES.

The King at Leys School.

The Leys School, Cambridge, has inaugurated the New Gateway Buildings with a function of some splendour, in which the King was the central figure. His Majesty struck the right note in his address, in the course of which he said: "I know and appreciate the character of the work that the School is doing, not only in the training of mind and body, but also in the formation of character. In the Leys School boys from families representing many different aspects of religious thought are brought together at the most impressionable time of their lives; and in their joint life here they learn lessons of mutual toleration and co-operation for common ends, which, later, they will carry into the wider life of the Universities and the world." The King was shown many sides of the school life, and the excitement of the boys was not diminished when he told them that he had asked Dr. Barber to give them an extra week's holiday.

The Budget.

Some disappointment may be felt that the Budget proposals do not include the allocation of larger grants to education. Mr. Lloyd George refers with approval to what Germany is doing in the matter of continuation education; and he reminds us, too, that a new Education Bill is not a necessity. The organization exists: only more money is wanted to enlarge its scope. And then he proposes an additional grant of about half a million. It is not likely that the Local Authorities will be satisfied: they will continue to press for more. As regards higher education the additional grant will amount, in a full year, to £560,000. This, in the Chancellor's words, is to make secondary, technical, and higher education more accessible to the masses of children. A substantial grant is to be made towards the pensions of teachers "in order to attract the best men to that most important profession." We welcome the words as an instalment of reasonable treatment; but it is misleading to talk of a pension, which is calculated to work out at some £70 or £80 a year after forty years' service, as an attraction, when it is compared with the much higher rate paid to Civil Servants.

New Inspectors.

The Board of Education ask us to publish (as we do in another column) an announcement that about seven Assistant Inspectors (men) will shortly be appointed for service in the Elementary Schools Branch of the Board. We note three points about this announcement. In the first place the appointments are to be given to men, notwithstanding the disproportionate number of men already in the Inspectorate. Secondly, in making the appointments, preference will be given to candidates who have been head teachers in elementary schools, and that these ex-head masters are not to be full Inspectors but assistants. Thirdly, the appointments are limited to the Elementary Branch of the Board. We hope before long to see some announcement about appointments in the Secondary Branch. During the twelve months included in the last report of the Board the number of secondary schools inspected was 227. Working at that rate the Board, with their present secondary staff, can inspect barely a thousand schools in four years. Yet Mr. Pease has told us that there are many thousands of secondary schools of which the Board has no cognizance, and which must be known and registered before secondary education can be organized.

"Organize your Secondary Education."

Matthew Arnold's cry, "Organize your secondary education," has been quoted again and again until, by mere force of repetition, we are apt to think the aim has been accomplished. It is true that something has been done; so far as the thousand secondary schools are concerned, those that receive grants from the Board of Education, the organization may indeed be said to be complete. But we fall into error when it is argued that because there are a number of well organized secondary schools, therefore secondary education is "organized." There is as yet no organization that touches the many secondary schools—their number has been placed as high as 14,000—that exist outside the influence of the Board. We want the Board of Education, acting through the Local Education

Authorities, to ensure that opportunities of efficient secondary education are provided in every area. Of the greater number of secondary schools, no one can say whether they are efficient or not. The Associations of these schools count their membership by hundreds, whereas the schools exist by thousands.

A Survey of Secondary Schools.

The first step in organization is a survey of the ground. It is quite clear that no satisfactory action can be taken until the extent of our educational resources is known. Some years ago it was assumed that the gradual increase in the number of State secondary schools would bring about a sufficient provision, and that private schools would die away in the secondary sphere, as they have done practically in the elementary. But twenty years of organized State secondary schools has brought about these results: the vigour of private schools has been shown; the Local Authorities have not made such provision that there is no room for private schools in their areas; and the feeling has grown stronger that there must be free trade in secondary education and no absolute State monopoly. In no other way than by a general survey can the educational resources of the country be known. The Board of Education, with the help of the Local Authorities, must carry out the survey. And the Treasury must find the money. Five years and a sum of £15,000 should prove sufficient. Till this survey is undertaken we cannot begin to organize on a complete scale.

The Result of a Survey.

It may be laid down as certain that the survey will disclose the facts, (1) that the State secondary schools make a partial provision only; (2) that some private schools will naturally take their place in the provision of a supply of education for the area; (3) that some private schools are without sufficient resources and must be materially helped. It must not be thought that in advocating a survey of the whole secondary field we propose to reduce all schools to a hard-and-fast system. This by no means means our view. We think that all educational institutes must be known and registered. We find no insuperable difficulty in the payment of grants to private schools that need them. But we do not advise that all schools should be required to work under the same code of regulations. We hold it as essential in the interest of the country that schools without sufficient resources should not be allowed to claim to supply what they cannot give. But the rigid and detailed inspection covering methods of teaching and limitations of curriculum will cease to be necessary, as teachers become properly qualified and imbued with the right professional feeling.

Sir Philip Magnus on the University of London.

Lord Moulton took the chair at the seventh Annual Dinner of the University of London Graduates' Association. Sir Philip Magnus replied to the toast of the University. He suggested that the record of work done up to the present time by the University did not justify the revolutionary changes recommended by the Royal Commission. He controverted what he considered the basic idea of the Commissioners' report—viz. that the University should be concentrated in one part of London. Thirty years ago, he said, such a proposal might have been possible. The growth of the work now made it impossible. Sir Philip was quite outspoken on the vexed question of external students. He read the report as indicating that, in the opinion of the Commissioners, there was no room in University education for external students; but he was glad to say that the pressure of public opinion had saved the external student from an early death. He expressed the hope that the University might be allowed to develop on its own lines and to follow its own traditions.

Proposals for Reform.

Speaking on the day following the dinner, which we have mentioned above, Sir Philip Magnus, on the occasion of the Presentation of Degrees, gave in fuller detail his suggestions for University reform. He advised that a committee of the Senate should be appointed, in order to consider without prejudice or bias the recommendations of the Commissioners, to decide which of them could be adopted with or without legislation, and to select those best calculated to raise the standard of teaching and to create further facilities for students. It was necessary, said Sir Philip, to attract in still larger numbers students from all parts of the Empire and to maintain the prestige attaching to the degrees. He wished to secure that the examinations should remain open, under suitable conditions, wherever and however the students might have carried on their studies, and without distinction of class, sex, or creed. Dr. Herringham spoke of the enormous problem of the distribution of wealth, which would occupy the minds of men for the next fifty years, and urged those who had had a University education to approach the matter without bitterness or rancour.

Progress.

At a recent meeting of the West Riding County Council, one of the members made an attack on the whole system of education. He compared the people of to-day with the times in which there was no compulsory education, and asked whether the nation was getting any return for the vast sums spent. He wanted to know whether people were happier, more contented, better off, better behaved, and more religious as a result of the work of the schools. From the newspaper accounts we may judge that his views received no support from the other councillors. It is, of course, the old story. There is no reason to suppose that a cow is other than happy and contented with her lot. But the increase of knowlege is the increase of sorrow. In spite of this, we seek after knowledge. An important result of the education that is given in our schools is an increased consciousness of personality, a growing recognition that each individual has the right to develop his own powers, so far as this is possible without harming the community of which he is a member.

In consequence a good deal of ancient servility has gone, and so we get complaints of want of manners.

Pensions.

A SYSTEM of pensions for secondary teachers in State-aided schools seems now to be within the range of practical politics. Mr. Lloyd George, in the course of his Budget speech, expressly stated that in his estimates he included a sum in connexion with the pension scheme for secondary teachers. The Departmental Committee recommend that in all State-aided secondary schools the teachers should be required to take out an insurance policy to mature at the age of sixty. The premium payable annually would be 10 per cent. of the salary, to be jointly contributed by the teacher and the governing body. It is recommended that the State should pay an allowance to each teacher at the age of sixty-five of £1 for each year of recorded service; and, further, that the State should provide disablement allowances. The *A.M.A.* hails the report with modified satisfaction. The inadequacy of the disablement allowance and the treatment of existing teachers are held to be bad points; but "the good points are obvious." The Assistant Mistresses, at their next meeting, propose to pass a resolution of cordial approval. The Joint Pensions Committee have also passed a resolution of approval and ask for immediate action. Teachers in private schools were not included in the terms of reference.

"The Facts of Life."

THE London County Council have been well advised to negative the proposal that instruction in "the facts of life" should be given in elementary schools. Public opinion is by no means prepared for such a course; neither is the attitude of the children one that would make this teaching profitable in class. No one is a greater stickler for the decencies of life than the working man, a position forced upon him owing to the lack of privacy in his life. And he takes this very proper desire for decency as prohibiting all sound teaching about the care of the body. He thinks that his boy gets undesirable knowledge in the streets, and he tries to keep him at home and declines to give him any teaching on these subjects, just because they are associated with unhealthy aspects. The public mind needs to be greatly enlightened before it will be possible to give this teaching in classes. The time will come, we are sure, when the natural desire for knowledge about the origin of life will be met in a natural and simple way. We teach every subject under the sun except the one that it concerns us all especially to know.

Salary Scales and Dismissal.

SCALES of salaries are very desirable, and we have taken our part in fighting for them; but we have always foreseen a possible difficulty in the case of secondary schools whose income is inelastic. The governors of a secondary school may institute a salary scheme by which regular increments are paid to the assistant master. Then the time comes when many members of the staff are approaching the maximum and the governors find their resources inadequate. The *A.M.A.*, in its recent issue, contains a case where this has happened. The account says that there were no complications in the case. Both the head master and the Inspector spoke well of the master's work. It was the balance sheet only that was in fault. The master was given the option of dismissal or a "much reduced" salary. He stayed on. It seemed to us that if a salary scheme is adopted it must be guaranteed either by the County Authority or by the governing body forming a sinking fund for the purpose of meeting increments. A single school may well find itself in difficulties; but over a large area matters would tend to equalize themselves. It would be disastrous for secondary education if a feeling of distrust about increments of salary were to arise.

Advertising Privileges for Members.

AT the last meeting of the Council of the College of Preceptors it was decided to offer an additional privilege to members. It will have been already observed that notices of vacancies in schools are now made a special feature in the advertisement columns. The Council has decided that members may advertise vacancies at reduced rates. Information on this point has been sent to members. Posts vacant, posts required, and schools for sale or wanted, are matters of special interest to the members of the College, and it seems natural that in their own organ they should be able to insert their wants at preferential rates. In addition, advertisements will be received dealing with matters personal to members, as distinguished from trade announcements. For instance, members may wish to advertise books or other articles for sale or exchange, houses to let for the holidays, lodgings required, and the like. As the paper is read by all members of the College, as well as by a steadily growing public outside the College, it is a valuable medium for the announcement of wants.

This Number, and the next.

DR. PRITCHARD continues this month the series of articles on "Sane Sex Teaching." We see that his previous article has attracted notice in other publications. The series on "Careers for Girls" is continued by Miss Morley, Editor of "Women's Work in Seven Professions"—a book that we review also this month. Next month Dr. Helen Webb will contribute an article on "Sane Sex Teaching: In Girls' Schools." The series of "Careers for Girls" will be continued by Mrs. Smedley MacLean, D.Sc., who will deal with the subject of "Household Science." Dr. David, Head Master of Rugby School, will contribute an especially valuable article on "The Teaching of English in Lower Forms"; and Mr. Padel, Head Master of Carlisle Grammar School, will open a symposium, on the question of the subjects to be taught in secondary schools, with an article containing some remarkably clear thinking and valuable suggestions on this very difficult matter.

WE desire to call attention to a conference which has

The Next Step in Education.

been organized under the title of "The Next Step in Education." The conference is to be held at the University of London, on June 18, 19, and 20. There will be morning and afternoon sessions on each day. Some of the subjects to be discussed are "School Clinics," "School Books as affecting Vision," "Ventilation," "Sex Instruction," and "Civics." The speakers include Dr. Kerr, Prof. Muirhead, Mr. Paton, and many other authorities. The title and the subjects of the conference indicate a growth in the connotation of the word "education." It is no longer "How to Teach Geography" or "The Use of the Blackboard in History"; but the whole life of the child is included. Admission is free, but reserved seats will be given to those who send in their names to Dr. L. Haden Guest, 16A John Street, Adelphi, W.C. The organizers are the Fabian Education Group, the King Alfred Society, the Moral Education League, the School Medical Officers' Association, and some other societies. A full list will be found in another column.

Foreign "Assistants."

THE Board of Education have reissued the Conditions of Employment of French and German Assistant Teachers in English Secondary Schools. This system has proved very valuable. For a small expense the school has the advantage of the presence for a year of a young master or mistress who, while studying the English language, will talk French or German to the pupils and bring a touch of actuality to the foreign language lessons. Schools in receipt of a State aid may get a grant amounting to £30 or half the cost of maintenance, where that is less than £60. Schools not in receipt of grants, and wishing to receive the foreign assistants without grants, may apply to the Secretary of the Board of Education. The more interchange of masters and mistresses the better for all the countries concerned. The assistants have free board and lodging, but no salary; they must not have more than twelve hours' teaching in the week.

Thanks to Lady Magnus.

THE "College Journal" may well voice the feelings of the members who were present at the Reception on May 20, and express to Sir Philip and Lady Magnus their warmest thanks for their very pleasant hospitality. Such an opportunity for members to get to know one another and to make the acquaintance of their President is valuable in promoting the solidarity of the College. A member writes to us that "Sir Philip Magnus's Reception was a great success. The rooms, which had been beautifully arranged and decorated, were thronged with members and guests. Lady Magnus is a charming hostess, and she and her husband extended a very hearty welcome to all their guests, and succeeded in making them feel thoroughly at home. There was an effective Hungarian band." Mr. J. A. Pease was unable to be present, but the Board of Education was represented by the Hon. W. N. Bruce and Dr. R. P. Scott.

SUMMARY OF THE MONTH.

MEMORIAL SCHOOL TO CARDINAL VAUGHAN.

The committee formed to raise a suitable memorial to the late Cardinal Vaughan unanimously decided, says the *Tablet,* in favour of a secondary school for boys, to be known as the Cardinal Vaughan Memorial School. It was felt that such a memorial would be in accordance both with the wishes of the late Cardinal and the best traditions of the pre-Reformation English Catholicism. The sum of £20,000 was raised within less than a year, and the committee purchased a large frechold property in Addison Road, Kensington, which, having been designed and built as a secondary school, is admirably suited to fulfil the object proposed by the committee. The building provides accommodation for over 150 pupils, and will be opened in September, 1914. The Rev. James Driscoll, M.A., has been appointed head master.

PASSIVE RESISTANCE.

Four persons summoned at Stourbridge Police Court for non-payment of rates handed in the following letter to the Bench:—

We continue to make our dignified protest to the Education Act of 1902, an Act which is unjust to many thousands, and sets up religious tests for teachers. We regret that it is still necessary to resist, as we wish to be law-abiding citizens, but must continue as conscience dictates until the law is amended.—Signed,

J. E. COMFORD; JOHN KITCHEN.

The usual orders for payment were made.

GIFTS TO GUILDFORD.

The extensive grounds of Allen House, Guildford, in the centre of the town, adjoining the High Street, have been acquired partly as an open space for use by the public and partly for use by the Grammar School, which stands opposite. At a meeting of the Town Council it was announced that Mr. H. A. Powell, Chairman of the Surrey Education Committee, had bought $3\frac{3}{4}$ acres for the Grammar School for playing fields at £2,400.

PUBLIC SCHOOLS MASONIC FESTIVAL.

The fourth annual festival of the Public Schools Masonic Lodges was held at Sherborne on May 16.

In the afternoon the brethren met under the banner of the Old Shirburnian Lodge, No. 3,304. There was an attendance of 214, among those present being Lord Shaftesbury (Provincial Grand Master of Dorset), Lord Radnor (Provincial Grand Master of Wilts), the Provincial Grand Master of Devon, and other grand officers. The installation of Mr. Harold E. Baker as Master of the Lodge was performed by Sir Edward Letchworth (Grand Secretary), the new officers were invested, and Mr. George Criswick was presented with the Past Master's jewel on his retirement from the chair.

The brethren afterwards marched in procession to the Abbey Church, where a special service was held. The Head Master of Sherborne read the lesson, and the Bishop of Salisbury delivered an address. The Vicar-Choral of St. Paul's Cathedral (Mr. H. Morgan) was soloist.

Lord Radnor presided at the festival banquet, which was held in the evening at the Digby Hotel. Among the 166 persons present were the headmasters of several of the public schools.

Mr. Manisty (founder and past master of the Old Westminster Lodge—the pioneer public school lodge), replying to the toast of "Sister Lodges," said that in the course of a few days an eleventh public school lodge would be formed of old Repton boys.

It is proposed to hold the next festival at Wellington.

BOY SCOUTS IN ACTION.

A troop of Paris Boy Scouts, sixty strong, marched on

Sunday afternoon, May 3, to Le Bourget, the scene of one of the hard-fought battles which took place round Paris during the siege of 1870. Outside the fortifications the bugles and drums of the Scouts' band were greeted with hoots and jeers by a gang of apaches who had gathered there to break up a political meeting.

On the return of the Scouts from their march the apaches were lying in wait for them, and met them with a volley of stones. At the order of the Scoutmaster the Scouts at once deployed and fell on the enemy with their sticks. A ten minutes' battle took place, at the end of which the apaches were beaten off with loss. Twelve of the Scouts' staves were broken on the heads of the enemy, and several of their bugles were dented for the same reason. The battlefield was littered with abandoned caps; one of the apaches, it is said, even left an ear behind. In spite of the victory the Scouts' commander deemed it wise to retire, and a retreat was skilfully effected to the gates of Paris under a desultory fire from the enemy's revolvers. One of the scouts was wounded by a bullet in the thigh. According to the police, who followed up the traces of the battle, twelve of the apaches had to be assisted from the field.—The Paris Correspondent of the *Morning Post*.

A Medical School for Wales.

The Governors of South Wales University College, Cardiff, have accepted an anonymous donor's offer to build a great school of preventive medicine, including necessary accommodation in connexion with complete medical school buildings not included in the gift of a physiological block by Sir William James Thomas. The conditions attaching to the donation include the allocation to the school of the £2,000 promised by the County Council and an assurance by Sir W. Osler, Regius Professor of Medicine at Oxford, that the intended grant from the Treasury is adequate for a first-rate medical school. The value of the anonymous gift is over £70,000.

Stockport Grammar School.

The foundation stone of the new buildings of the Stockport Grammar School at Davenport was laid by Mr. W. B. Hodgkinson, the Chairman of the Ephraim Hallam Trust, which has made a gift of £20,000 towards the undertaking. The new school, which will accommodate 250 scholars, stands on a site of 11 acres, the playing-fields adjoining the school buildings.

"The Modern Language Review."

Dr. H. Oelsner has retired from the editorship of the Romance Section of *The Modern Language Review*, and his place was taken after Easter by Prof. Fitzmaurice-Kelly. *The Modern Language Review*, which is the only periodical published in this country devoted exclusively to research work in Medieval and Modern Languages, is now in its ninth year.

Society of Education.

A meeting of representatives of educational organizations was held at the offices of the Teachers' Guild at 3 p.m. on Saturday, May 23, for the further consideration of the question of forming a Society of Education. It was considered that the purpose of the Society should be to encourage research and guide educational progress. It was reported that, in response to a preliminary inquiry sent to a certain number of educational leaders, fifty-three had promised to join, and a number of other letters had been received approving of the idea of such an association. After discussion it was agreed to leave the formation of a provisional committee to the Chairman with a view to the election of a permanent committee at a meeting to be held in the autumn.

King's College Hostel Fund.

In connexion with the King's College Theological Hostel Building Fund, the Warden announces the following further donations towards the £5,000 required in order to enable him to claim a conditional gift of £5,000:—£250, Anonymous; £200, Anonymous; and £100, H. W. Prescott. These and smaller sums make the total amount received about £1,620, leaving £3,380 to be collected by the 31st inst.

President Poincaré and a School Magazine.

The Paris Correspondent of the *Times* tells us that some time ago a set of schoolboys of the Lycée Janson, one of the most famous of the Paris public schools, founded a magazine. Its title is *Le Coup d'Aile*, and it is edited on ambitious lines by the son of M. de Margerie. The magazine had not long been in circulation before the authorities of the Lycée decided that its publication was undesirable, and threatened to suppress it. The Committee of the magazine then hit upon the brilliant idea of appealing to the President of the Republic, and sent him a copy of the paper, asking for his patronage. The President was delighted with the *Coup d'Aile*. He sent a letter to the editor expressing his good wishes for the paper, and enclosing a poem of his own, written in 1880, when he was just twenty years old. The poem appeared in the last number and produced a record circulation, and there is no more talk of suppressing the paper.

The Rev. Walter John Barton, M.A., New College, Oxford, has been appointed to the head mastership of Epsom College, which will become vacant at the end of the summer term, owing to the resignation of the Rev. T. N. H. Smith-Pearse, who has held the office for twenty-five years.

A new gymnasium, the gift of Dr. and Mrs. J. B. Hurry, has been opened at University College, Reading.

Mr. Pease, President of the Board of Education, has appointed Mr. Sydney Arnold, M.P., to be his Parliamentary private secretary.

The General Board of Studies of the University of Cambridge have appointed Mr. E. R. Burdon, of Sidney Sussex College, to be University Lecturer in Forestry as from January 1, 1914, until December 31, 1918.

The Highest Grade Schools Examination Syndicate have appointed Mr. T. G. Bedford, of Sidney Sussex College, to be Secretary to the Syndicate.

MUSIC AND RELAXATION.

By Herbert Antcliffe.

If one were to ask the average person what is the object of such an art as that of music, he would probably reply, after hesitation, that its object is to amuse or to entertain. Art, except the applied arts, is generally regarded as a means of recreation, and though there are few who would deny the propriety of certain persons making a profession of it, the majority regard the professional artist in the same light as they regard the professional sportsman or the professional comedian. He is a person, they think, who spends his time and energy in doing that which it is not worth the while of the ordinary person to do except in a casual way, and which it is generally much more entertaining to get someone else to do for him. After a hard day's work in the City it is pleasant to be able to sit down and listen to agreeable sounds which require no thought to appreciate. If an expert at the art of producing those sounds is available it is much nicer, because he does not make so many mistakes as does the daughter at home, and "there's something about him that makes it different." But if we cannot have a professional,

the efforts of one's own family are quite acceptable, and they have the additional advantage of appealing to one's personal pride.

And this sort of person, it must be confessed, has a certain amount of right on his side. Music, as well as the other arts, has its functions as a means of recreation and relaxation, and to deny or ignore them is to limit its uses and restrict its powers. It is, in fact, difficult to say where recreation ends, and the higher scope of art—edification—begins.

Perhaps the misunderstanding between the serious artist and the man in the street is more often caused by the difference of meaning applied to the same words than to anything else. The two words which lead to the greatest differences are the two which refer most directly to the subject, "art" and "recreation," and an attempt at definition may therefore be useful. Art is that process of selection and construction which discovers whatever is most beautiful and most edifying in Nature, and puts it before us in the manner and form by which it has its most forceful and beneficial effect. Recreation, as its name implies, is the readjustment and rebuilding of the powers of the mind and body which have become vitiated and incapable of completely fulfilling their purposes. And just as when we are going to rebuild a wall we pull down the remnants of brick and stone, or some of them, in order that we may have the whole strong and newly built, so, when we re-create any part of the mind or body we begin by a relaxation which brings them into a clear and healthy condition.

With these definitions we may safely say that art may be a means of recreation without losing its dignity. We may, in fact, go further, and say that it fails to fulfil the objects of its existence if it is not a means of recreation, while, to the one whose chief interests of necessity lie in other directions, in its lighter aspects it even forms a proper relaxation.

Primarily music is a sensuous art, an art that exercises its functions through the senses. We must very carefully distinguish between sensuous and sensual. Good music is never sensual; it never appeals merely to the senses. But it is always sensuous; it cannot make its full appeal except by means of the senses. The first thing that music expresses, and therefore the first emotion that it arouses, is pleasure. Now pleasure is in itself a relaxation and the reason why we are able to pursue certain studies, to do certain kinds of work, with so much less effort than others is that they have within themselves the means of relaxation; or, in colloquial terms, they give us pleasure. Yet at its highest not even music is entirely a relaxation; it is never merely a loosening of all the reins of the mind. We see the general recognition of this in the common association of the various factors of social life. We do not couple, for instance, arts and pastimes, or music and entertainments, so much as we do sports and pastimes, music and what we honour with the exclusive title of art—painting and sculpture. But it must always be a recreation, a loosening of some strain, in order that the faculties as a whole may be freshly and more firmly braced to their work.

Although the art of music has developed to such a great extent since the days of Greek learning, in essentials it has remained the same. It was then, as it is now, a means for the expression of the emotions and of appeal to the emotions. And the ancient Greeks, who were surely the source, if not the flood, of all worldly wisdom, recognized this, and recognized also how high a position it should take and how great a work it should do. Most of their philosophers had some theory or other with regard to the effect of different scales or tonalities upon the human passions. The Dorian scale—*i.e.* the scale which has for its lowest note what is the third of our present major scale—was generally considered to inspire "respect for the law, obedience, courage, self-esteem, and independence." The Lydian scale (similar to our modern major scale) Plato wished to prohibit entirely as he thought that it, and the melodies founded on it, "had a voluptuous, sensual, and enervating tendency"; though Aristotle, a little later, considered it to have the power of awakening "the love of modesty and purity." He also attributed to the Phrygian scale (D to D) the qualities of "repose and dignity." Pythagoras a century before this is said to have suggested the use of certain melodies as antidotes to special passions. It is even said that on one occasion, by using a certain melody, he brought back the reason of a youth deranged by love and jealousy. And, of course, the stories of Arion, whose music caused the dolphins to save him from drowning, and of Orpheus, who charmed all things animate and inanimate with his lute, are well known. Both Plato and Aristotle regarded music as a means by which could be given to the soul similar strength and vigour to that which gymnastics give to the body. But also like exhilarating wine or refreshing sleep, they thought it should afford enjoyment and recreation. And even to-day the pathological qualities of music are not entirely ignored.

There are, of course, some matters which we cannot in any respect utilize for the purposes of relaxation or employ as aids to it. They are in their nature too great a strain on our minds or our feelings. The necessary, but necessarily material, matters by which the majority have to earn their daily bread, for example, have to be cast aside before any relaxation is possible. (But is it not a serious reflection on our modern civilization that this should be so—that we have to spend so much of our time and energy on matters which our nature tells us are of the least importance, and, so far as life itself is concerned, the least useful? Surely one—but only one—of the evidences of the high place that art should take in our lives is its adaptability to so many different purposes. It performs at least the double duty of pulling down and rebuilding, of relaxing and recreating, and not infrequently the third function of aiding the work of others—that is, it stretches away from the individual and becomes impersonal.)

This is the reason why those of us who are musicians, amateur or professional, do not often find it necessary to get away from the subject which takes so much of our thoughts and energies at ordinary times. The musician is frequently laughed at for taking a "'busman's holiday." Many professional musicians who work hard for eight or ten hours a day during ten or eleven months of the year spend their short holidays listening to other musicians or discussing technical or professional matters with others who are interested. There are some who take no other holiday for years in succession, yet they suffer little or not at all from their continuous attention to this one subject. Of course, it can be, and sometimes is, overdone. Some years ago a famous conductor and teacher boasted that he had worked seven days a week and fifty-two weeks every year for all his life. But he died, worn out with overwork, fifteen years before he reached the allotted span of three score and ten. What would have been the result had he been able to devote the same time to the art that he devoted to the business connected with it one can only conjecture. Probably it would have been less disastrous.

Music may be either a cause or an effect of relaxation—by its employment as a means of impression or of expression. Impression and expression are as necessary for recreation, and even for relaxation, as they are for growth and development. By listening to certain kinds of music we may find that inactivity without vacuity of mind which is so necessary from time to time. On the other hand, by indulging in the composition or interpretation of music we may find a congenial activity which will relieve our minds of the monotony of inactivity. If we recognize music as a means of expression at all—and it is difficult to see how we can do otherwise—we must realize this. Music does not express the same things as does language, or in the same way. Primarily and generally, words may be said to express thoughts while music expresses emotion. Therefore music is more useful as a relaxation than is literature, for slight emotions are more natural and helpful than are slight thoughts. The question (which is the ultimate problem of most psychologists) whether a state of pure emotion is possible does not necessarily enter here, though it might have some bearing on the wider one of the complete object of music.

It is hardly necessary to point out that what at one time and in certain circumstances may be a relaxation, at another time and in other circumstances may be a great strain, and that what causes a relaxation of one set of faculties may cause a strain upon others. Therefore, in considering the practical aspect of the matter we cannot lay down certain rules as to the class of music which may be employed or the manner of its employment. There are cases where the actual playing of difficult, intellectual music causes a greater relaxation than the passive listening to light and simple music affords. Why? Simply because we must have a certain degree of mental or emotional satisfaction before either mind or body can be entirely at ease. Anything which irritates puts a strain upon both mind and body. For this reason, to the sensitive musician the hearing of most—probably nine-tenths—of the light music of to-day is the reverse of what it should be.

Light music should be a means of relaxation to all who hear it; and most of it should also be a means of relaxation to those who take part in it. All the greatest musicians of history have realized this, and every one of them has endeavoured to supply some music which carries out these conditions. This must not be taken to imply that all those taking part in light opera, for instance, should feel refreshed when their work is finished. Professional light music should form the smallest and not the largest proportion, as it does to-day, of that which is heard. Moreover, this class of music at its best, as well as at its worst, makes its effect by impression on those who hear it rather than on those who take part in its production. This is always the case with the combined arts, and where the artist sees or hears little of the complete effect.

Classical music is commonly supposed to be too serious for purposes of relaxation. This is, however, a large quantity of music that is both classical and light—that is, which may be taken as a standard model of how to write, and which, nevertheless, requires little strain to perform and none to listen to. Some is even humorous; but the bulk of it is merely cheerful, and requires no effort to appreciate. Audiences of uneducated paupers and of neglected slum children have been known to stamp and cheer for a repetition of music by the great Johann Sebastian Bach—a composer of whom most people are afraid because of his severe classicism. And this, too, at a first hearing! They would hardly have done this if the music were in any degree a strain on their feelings or mentality.

The misunderstanding of the work of the great composers generally arises from two conditions. First is the fact that by the time their position among the classics is secure the idiom of much of what they have written is out of date. Secondly, the study of those works which form the best models of intellectual work has generally shut out of sight their lighter works.

In times of leisure it is quite natural to turn right away from even the mere names of the authors whose works we employ in scholastic work. We do not seek our recreation in the works which at school we have parsed and analysed and dissected and reconstructed and transcribed and been questioned upon *ad nauseam*. And not unnaturally we associate the names of their authors with the dry studies of certain of their productions. This is a great mistake, however, especially in matters of music. It would not be a very difficult matter to compile a long list of light music by such composers as Bach, Handel, Haydn, Mozart, Beethoven, Schubert, Weber, Schumann, Mendelssohn, and even of the severe Brahms and the philosophic Wagner. But because they were primarily serious artists most of it would be from their less known works.

While we cannot have strict rules as to the class and manner of music to be employed for the purposes of relaxation, we can find certain general characteristics which aid all music in its qualities as a relaxation.

The most obvious of these characteristics is a sound and regular rhythmic construction. All rhythmic music is not an aid to relaxation. So far from being so, some of it is quite fatiguing. We must not be misled into thinking that regular rhythm means strongly marked rhythm. Strongly marked rhythm has this advantage, that it is easily understood and grasped. It is also by its nature associated with physical recreation. For this reason it is useful for providing mental relaxation by means of physical exercise. In addressing teachers one need not dwell on this point; for it is one that is generally realized in the profession. It may be, however, that some do not realize how great an aid it may become towards physical relaxation, and particularly how greatly vocal music may aid physical work by the relief it gives to the feelings.

In Germany particularly, but in other countries (including our own) to a somewhat smaller extent, there is to-day a definite school of thought whose motto is "Arbeit und Rhythmus." As a matter of fact this cult is simply drawing attention afresh to eternal facts which in these materialistic days have been largely lost sight of. For centuries work and music went hand in hand, because each helped the other; music providing constant relief to brains and hands, thus preventing undue fatigue, while work provided a basis of rhythm for the music.

Sometimes, however, both body and mind require the relaxation which strongly marked rhythm does not give. Nothing proves how tiring strongly marked rhythm may be (though it is not always so) than a long ride in a railway train or a tram car over rails that are well worn.

Nevertheless, soothing music must be rhythmical to a high degree, though its rhythm must be more or less subtle. Its rhythm must not be broken up or disjointed, but must flow smoothly on from point to point, so that the whole is one complete entity, if not one complete phrase, and any mental effort to connect its parts is entirely unnecessary. Other qualities may help, such as melodiousness, smoothness of harmony, and most of all a psychological or subjective calmness; but these are less essential. Thought may enter as it does into games and light conversation, provided it is in no degree strenuous.

CAREERS FOR GIRLS.*

II.—THE TEACHING PROFESSION.

By Prof. Edith J. Morley.

According to the Census of 1911, there are in Great Britain 187,283 women who describe themselves as teachers. The numbers are unparalleled in any other profession followed by women, and while this is perhaps natural, it provides matter for serious thought on the part of those who are responsible for advising girls about their careers. Are there too many women teachers, and are they rightly distributed over the different branches of the profession? It is not possible to give an unqualified yea or nay to these questions. The demand for instructors of youth is steady and certain: it necessarily increases at least in proportion to the increase in population, perhaps more rapidly, since the importance of education is ever more widely recognized. The supply of fully qualified teachers in most branches of the profession does not at present equal the demand: in some—for example, in elementary-school teaching—we hear lamentable stories of insufficient recruits, and inevitable shortness of supply in the near future.

On the other hand, every head mistress, at any rate in secondary schools, can tell tales of the many applicants for each post that is advertised and the difficulty of selection among the numerous candidates, of whom, it may well be, few appear to possess precisely the requisite qualifications, and many are quite unsuitable. Herein lies the crux of the whole problem. Teaching was the first recognized career for "genteel" women, the refuge of the destitute and incompetent lady with unimpeachable manners and no other credentials for the work. It still suffers from this tradition of being "ladylike," though the downtrodden and untrained

* The first article appeared in the May number.

governess is rapidly becoming an obsolete type. Fewer obstacles are placed by anxious parents in the way of girls who wish to teach than of those who desire some less obvious opening: the intelligent schoolgirl, who yearns to go on to the University, is less likely to be discouraged by her guardians if her degree is to qualify her as a schoolmistress, and so she often takes the path of least resistance, even when what she desires is to learn rather than to teach—or perhaps simply to enjoy the comparative freedom and manifold attractions of college life. Probably everyone who is interested in the after-careers of women students is thus frequently called upon to dissuade them from entering the teaching profession and to urge the adoption of some other means of livelihood. It is therefore desirable here to say emphatically that no girl should become a teacher unless she feels an imperative call to the work. The career is arduous; it makes large demands on body and heart as well as on brain; without enthusiasm and conviction sufficient to carry her over much monotonous, thankless drudgery, no young woman is likely to find the work satisfying to herself and therefore satisfactory as regards her pupils. Just because a teacher's life offers unsurpassed opportunities to those who are able to take them, it is liable not only to flagrant failures, but also to constant and galling absence of success in grappling with the routine of every day. The many middle-aged teachers, worn-out, nervy, and depressed, who drift from school to school, witness to the hardships of a life to which they are not suited.

This warning to girls to make sure that they are fitted for the profession before they decide to enter it, is not intended to dissuade those who have a real vocation. For them, no work could be more inspiring and delightful, and this in spite of any and all of its drawbacks. Those who love young people, and are eager to help them to self-development and the discovery of truth, those who care to learn and to teach, may find their own happiness and opportunity in the career they have chosen. For such teachers there is scope in every branch of the profession, and in this, as in most callings, there is plenty of room at the top. The financial return may be small and altogether incommensurate with the labour given, but other returns less easy to compute are found in full measure.

Inadequate salaries are, however, a disadvantage which cannot be ignored in any consideration of the teaching career. They are due to many causes, among which perhaps the most important is the general under-estimate of the value of education, in part the result of some distrust in the types of education commonly provided. The special under-payment of women teachers, common to every branch of the profession, is comparable with the exploitation of women in every paid employment which they undertake. The reasons for this cannot here be examined; they rest mainly on the frequent economic dependence of women and on the fact that most professional and many other working women give up paid employment on marriage. So long as women are content to accept for their work a scale of payment which requires supplementing from other sources, they will receive no more than they demand. Again, while they look upon their professional work as a stop-gap between school and marriage, or while they permit society in general so to regard it, that work will continue to be insufficiently remunerated. Women teachers, like all other women workers, have need constantly to bear in mind these indisputable facts. It is their duty to see that they do not accept underpayment: wherever they are able they should, both individually and by loyal combination, work towards a general rise in the scale of salaries now in vogue. They should resent and combat any clause in their agreements which imposes retirement on marriage as a condition of appointment; they should claim freedom to decide for themselves whether such retirement be desirable; and, above all, they should avoid the short-sighted jealousy of married teachers, from which some young teachers suffer while waiting for preferment. It is not necessary to affirm that all married women should accept paid employment: it is necessary to allow to all the freedom of choice which is essential, if serious racial and economical dangers are to be avoided.

In this connexion, lastly, it may be noted that in old days parents often grudged their daughters the necessary professional training, precisely on the score that they would never earn enough adequately to provide for themselves and to save for old age, while in any case it might not be necessary for them to do so. There is nowadays an increasing recognition among middle-class parents that marriage is not inevitable, and that in any event it is not a certain provision for their daughters; consequently girls must be as thoroughly equipped for a career as are their brothers. Thus there is a growing public opinion to support women in their demands for adequate payment and for permanent employment.

At present it takes at least four years after matriculation to equip a girl as form mistress in a secondary school, three years to obtain a University degree, one year to prepare for a training diploma. The latter is already almost indispensable; after 1920 it will be essential for all who desire to be included in the new Teachers' Register. Most secondary teachers, unless the fortunate possessors of scholarships,* must incur, while preparing for their degree examination, liabilities varying from £60 to £350, apart from vacation and personal expenses. Bursaries for training are at present not hard to obtain; without them, an additional £20 to £60 must be forthcoming before the minimum equipment has been secured. Specialist teachers often need at least one or two additional years for post-graduate work or residence abroad.

In return for this large expenditure the Association of Assistant Mistresses suggests £120 as the initial minimum (non-residential) salary, rising in ten years by annual increments to £220 in ordinary cases, and to £250 for "positions of special responsibility." These salaries are at present attained by only a small proportion of teachers, while the average assistant mistress never secures much more than £130, even in a public school. Head mistresses earn anything from £200 to £1,000, though the latter figure is quite exceptional. No one can maintain that these salaries are proportionate to the expenditure involved in academic and professional training, especially since pensions are not generally provided for secondary teachers.

The elementary-school teacher has certain advantages as well as disadvantages in comparison with the assistant mistress in a secondary school. She obtains considerable financial help from the State and from her Local Authority for training: non-resident students seldom have any out-of-pocket expenses for their actual education, though women students in a residential college must supplement grants to the extent of from £16 to £20 a year. A student obtains her full qualifications for a Government certificate after two academic years; if she desire a University degree, she must reside for three years at least, usually for four, if she come under the excellent new regulation, which permits her to train after graduation instead of compelling her to take the two courses simultaneously.

Holidays are longer in a secondary than in an elementary school; the physical and intellectual conditions are usually more attractive and salaries are generally, but by no means invariably, larger. Classes are seldom more than half the size, and there are fewer red-tape regulations. On the other hand, there is much more homework, more strain of external examinations, more demands on the teacher's leisure, greater personal expenses, less security of tenure, and no certainty of a pension, however inadequate. To all teachers there comes the joy of service, but some girls will welcome the larger and more obvious opportunities for social interests and for getting into touch with the realities of life, which are peculiarly the privilege and the difficulty of the elementary teacher. Others will feel themselves better suited to the

* See the full list of these and the detailed account of expenses at each University, in the Table contributed by the Students' Careers Association to "Women Workers in Seven Professions" edited by the writer of this article and published by Messrs. Routledge.

conditions of the secondary school, and will consequently do better work there.

In the space of a brief article it is not possible to discuss the many specialized forms of teaching for which there are nowadays openings. It is safe to say that almost any talent a girl possesses may be turned to account in the profession, provided she be willing to use her gift primarily in this way. But if she is to be a teacher she must pride herself first of all on that and bend all her faculties to her chosen task. Success is not possible to her who teaches only for a livelihood, while longing all the time for self-expression, whether as scholar, musician, or painter. Yet the teacher will be the more inspiring precisely in the degree she succeeds in living the life intellectual or the life artistic. By no other means is she so likely to make her pupils realize the joys of knowledge and of achievement. This is as true in the Kindergarten as in the University: the teacher must believe in the worth of education, she must have tasted the delights of the search for truth or of the appreciation of beauty, if she is to inspire young people with the enthusiasm which will carry them past difficulties. She who succeeds in thus handing on the torch will be amply repaid for her own toil and will not be likely to regret her choice of the teaching profession.

THE CONNEXION BETWEEN THE PHYSICAL, MENTAL, AND MORAL DEVELOPMENT OF CHILDREN.

We have been in the past too fond of putting things into water-tight compartments. Nor have we been content even with that, but have actually put each department in charge of a specialist who too often has considered his work alone without any attempt to see its relation to another.

When first man's consciousness of life is awakened and he realizes his ordering power and turns his attention to the directing of life towards some aim, this decentralization and specialization is quite natural. He sees bits of things at a time, and no wide grasp is possible to him. Only experience and comparison, the realization of common difficulties and the power which overcomes them, teaches him that life is one and indivisible, that strength in one direction means strength all round, that weakness in one place means weakness for the whole. I am not regretting past mistakes, we have learnt much by means of them; but I do regret the continuance of these mistakes now that we should know better. Sociologists have learnt much by the study of social and political developments in departments; they have now to co-ordinate their knowledge and realize the interdependence of each part of the national life.

Psychologists in the past have studied the faculties of the mind as if they were separate and distinct from each other—they have now learnt to emphasize that mental development can be properly understood only when these faculties are seen as expressions of the whole mind. So in the past the child has been considered as if it consisted of three separate parts—body, mind, and soul—each of which lived an entirely separate life.

The educationist has been busy with the mind, the parson with the soul, and occasionally when the poor body really insisted on obtruding itself, the docter has busied himself with that.

But at last, all this has changed, though it has taken humanity a good many hundred years to carry out the change, for is it not twenty centuries ago since Aristotle preached that the basis of mental health is physical soundness? Miss Dove, the late Head Mistress of Wycombe Abbey School, never heard of a girl's work or conduct being unsatisfactory but she inquired at once as to the condition of the bodily health, and frequently a doctor's examination was ordered before any reprimand was given or better work insisted on.

But the close connexion between physical and mental fitness has been proved not only in such schools as Wycombe Abbey, but again and again wherever attempts have been made to educate rationally. In Lancashire, for instance, careful comparison has been made between the mental brightness of all-day school children and half-timers. Not only are the former pronounced invariably the quicker and more intelligent, but in weight, height, and general physique there is marked superiority. Is there no connexion between these two things? Some years ago a Committee, including several well known London doctors, examined eight hundred London school children, and found that 28½ per cent. of the mentally dull showed marked signs of physical inferiority in some form or other.

The dependence of mind and body has also been shown both in Sheffield and Bradford, where the introduction of regular school meals was followed by marked physical and mental improvement in the children. The same influence of body on mental power is illustrated through all the investigations which have been made on insanity and alcoholism; and Sir George Newman has said "there is now indisputable evidence of a practical and clinical kind that alcoholism in the parents is one of the causes of mental degeneration of all kinds." With regard to insanity, it is unquestionable that in a large proportion of cases this arises from an impairment of the due nutrition of the cerebrum, owing either to some defect in the nervous tissue or to an imperfect blood supply. These conditions may arise through mechanical injuries to the brain or through exhaustion after unnatural and forced activity, or as the result of some constitutional disease. In any case, what this serves to illustrate is the dependence of mental activity on bodily condition. If the blood, nerves, or brain of a child are enfeebled in any way whatever, you cannot expect satisfactory intellectual or moral development. To a large extent this is now realized by Educational Authorities; hence we have medical inspection of school children, school clinics, and school feeding. So far good, but is it enough? If we have realized that unsatisfactory mental and moral development has often to be traced back to unsatisfactory physical development, should we not go further and ask the causes of unsatisfactory physical development? What are the necessary conditions for the healthy bodies which go far to make healthy minds? Surely fresh air, clean water, good housing conditions, and right and sufficient food? If we are out to educate the minds of the nation's children, it is folly and waste not to go back to these ultimate things which affect the mind's health. It is a waste of time and energy and money to drive children into school if they are to sit there merely quiescent, with ill nourished brains, unable to do healthily the work which the teachers require of the puzzled, patient little minds.

Let us first consider the necessity for light and fresh air. Human beings can no more flourish in close and crowded quarters than plants can. No gardener would be so foolish as to expect it. Yet if you ask anyone responsible for the nation's education if they desire that the nation's children shall be healthy, intelligent, and moral, they will reply "assuredly," and with a simple credulity, which they would scorn in any gardener, they expect this result from families where the children are herded in ill ventilated rooms, sleeping three or four in a bed, late asleep, early awake, whose rest is seldom sufficient either in quality or in quantity, whose meals are made from food which has stood about in the general living room, for the houses of the people have seldom any larder accommodation.

From investigations made by Dr. Leslie Mackenzie on 72,857 school children in Glasgow it was ascertained that the average weight and height of children living in one-roomed and four-roomed houses differed by as much as 13 lb. in weight and 5 inches in height. Similar statistics from Dundee showed that the average weight of boys of thirteen years in the schools for poor districts was 9 lb. less than in those for the well-to-do districts. One is not surprised to hear also that their mental capacity varied in the same ratio. In London in 1909, one in seven of the entire population were still living at the rate of two in a room. What does this mean as to the number of rooms per family in a poor district when we know the extra proportion of rooms to an individual in the West End? Yet we consider ourselves an intelligent people!

Comparing the children of Port Sunlight and Liverpool, we find at the age of eleven a difference of 4 in. in height and 1 st. 6 lb. in weight! Is there anything more pathetic than to think of children who ought essentially to be the most

vital and joyous of creatures, handicapped from the beginning by the conditions in which we allow them to grow up? When I see children like this, undersized, pale, with little power of resistance to disease, little vitality or power of natural enjoyment, I might well be tempted, lover of life and little children as I am, to wonder how far the high rate of infant mortality in snch districts is an evil!

Then what can be said as to the supply of clean water for drinking, bathing, and general cleansing purposes which is within the reach of the children in such homes? How many houses are there still in our small towns and country districts where no water is laid on, but where it has all to be fetched often from sources very questionable as to purity. We, who can turn on our hot-water taps, what do we know of the difficulties of the mother who would fain keep her children clean, but who has every drop of water to fetch and then to heat on a fire which has often to be lit for the special purpose before she can bath her babies? We, who have bathrooms and night nurseries, what do we know of the difficulties of bathing a family of all ages in one small tub in the common living room? We, who can buy our daintily scented soap with comparatively little thought as to its cost, what do we know of the struggle in a mother's mind as to the advisability of buying food *or* soap?

We, who can send our soiled linen on Monday to the laundry and receive it back on the Friday fresh and dainty, what do we know as to the amount a woman feels capable of washing who is also cook, housemaid, nurse, seamstress, and often expectant mother? Is it likely that, taking all these things into consideration, that the ordinary school child is as happily familiar with soap and water as we would wish him to be?

Then as to food — I heard a party of mothers discussing food and incidentally their neighbour's strong points and frailties, and one remarked "I should think she *is* always hard-up; why, she lets her children eat as much as they like!" and all agreed as to the foolishness and criminality of the procedure. How does this strike you, oh! ye mothers who regard with joy and satisfaction the healthy appetites of your sturdy sons and daughters, or who press cream, butter, and other nourishing delicacies on the little ones who seem inclined to be delicate? "You remember, mother," said a small daughter; when reproved for extravagance in butter, "Dr. W. said I should be rolled in butter!" Do doctors ever give this advice to working-class mothers? I think not—yet, surely what is good for one child is good for another.

Would we think it sufficient to give our children three meals a week as some soup kitchens have done in the past, and act as if on the other days the children were not hungry and needed no dinner? Do we really believe that children need food during the term time, but not in the holidays—yet this apparently is what some school authorities believe! Or perhaps they think there is an automatic increase of the father's income during the weeks that the children are not at school! Until the household income is such as will insure a sufficient supply of good, wholesome food at home, or until breakfast and dinner are part of the school routine, we cannot consider our education arrangements are adequate.

But apart from the need of the child for food, does not the preparing and serving of school meals afford a very important means of education? What do we educate for unless it is for life? The beautiful and orderly and efficient preparing of food and clothing for the family is one of the most natural and joyous bits of work a woman can do, but how seldom is she taught how to do it! I should like to see every school equipped with baths, kitchens and dining rooms, and girls and boys in relays being taught the right and scientific and beautiful care of their bodies through the right use of soap and water and exercise, and the right preparation and serving of food. As the elder ones became thoroughly efficient in this, those who desired it would be trusted with the care of the little ones at bath and meal times, and so would be learning how to look after their own children in the days to come. I believe the purely intellectual work would more than gain, through the increased energy and interest of the children, what it might lose through having less time spent over it.

But even if the mind were *not* dependent on the physical conditions of its organ—the brain—I contend that any education we give is incomplete unless it includes the care and development of the body. Man is not soul alone, or mind alone, but soul, mind, and body, and this being so, education must mean the development of all three to the greatest possible perfection. Though it may be more easy to recognize the Divine life in its mental or spiritual expression, yet we must remember our physical life is divine also. "In whom we live, and move, and have our being," applies to the body as well as to the mind. Our physical life is a glorious and sacred charge as well as our spiritual life. The God of beauty who has shown through countless laws of harmony in tone and colour and form that He cannot move in and through Nature without producing that which through our joyous recognition of it we call beauty, whether it is in the blue of the butterfly's wing or the flush of the sunset sky, is dishonoured when man, by the ignoring or breaking of these eternal laws of health and beauty, produces the poor, flabby, muscleless creature with lack-lustre eye, diseased and discoloured teeth, muddy complexion, and thin, dull hair, which he still calls a human being.

When we have learnt again to value beauty and strength of body as it should be valued, we shall be nearer to understanding man as a divine and spiritual whole. For we shall find that no one side can be rightly developed without the other. In the same way as the body influences the mind, the mind influences the soul or the spiritual grasp of man. Some of the harmful and unspiritual religious teaching of the past could never have been received if the minds of men had been trained to reason more accurately and logically, and if the imaginative power, most glorious of man's possessions, had been developed and used as it should have been. Ignorance and fear—both the results of bad mental training—have been the worst enemies of religion in the past.

The body influences the mind, and the mind the soul, undoubtedly; but each also acts on the other in the reverse order, the soul influencing the mind and the mind the body. For the mind must have room and peace if it is to develop in its most perfect way, and these it can reach only when the soul has some knowledge of the beatific vision. In the same way the body will only reach its perfect development as we realize the influence and power of the mind upon it. How many of our present physical ailments are the results of ill regulated mental impulses, morbid and selfish desires, and a restless, hysterical absence of peace.

"We are out of tune," and no harmonious development is possible to us. The education of the future must recognize that man is an entity—a Divine entity—that Heaven and eternity, instead of being dim, future possibilities, are with us here and now, and that the ideal education of the child man must embrace all sides of his being and realize every expression of the divine, which is the only life.

M. C. Scott.

THE LIGHTER SIDE OF PEDAGOGY.

In Daily Use.

It was some years ago (writes a correspondent), when I was in charge of the Second Standard, that the following incident occurred, and though it is one against myself it is too good to be lost to posterity:—It was the occasion of the Inspector's visit, and according to custom I solemnly placed the cane out of sight, and in a few words to my class warned them that canings would be mentally registered and administered on the morrow. (Please, reader, don't take this sentence too seriously). H.M.I. looked in on me as I was giving a lesson on Parts of Speech. Failing to get an example of a noun from a sharp but "naughty" boy, I pressed the question with—"Can't you give me the name of any article in common use? What is that (pointing to the blackboard) in front of you which I use every day?" "The cane, Sir!" The titter that followed, the Inspector's smile, and my chagrin brought to my notice the article in question, which had somehow slipped, and was showing between the blackboard and the wall.

In a Shop or on the Ocean?

The woman teacher had a mixed class of boys and girls. "I gave them a dictation lesson," she said, "to see how they could manage words which are sounded alike and spelt differently. Would you believe that most of the girls spelt 'sail' 'sale' and that most of the boys spelt 'sale' 'sail'? You see the sex difference shows itself at a very early stage." —*Manchester Guardian.*

* * *

Definition of a Head Teacher.

A girl was asked to write a composition exercise. In the course of it she referred to the head mistress as the "Lady who sits in the hall," and concluded as follows: "Now, my dear mistress, I must now culminate."—*London Teacher.*

* * *

Sweet Innocence.

The following is taken from the "Raynes Park Boys' School Notes" (quoted in the *Morning Post*): One day a boy in class G was seen to be eating a very large piece of toffee. "Are you eating?" asked the master. "Oh, no, sir," replied the boy innocently, "I am only finishing what I began outside."

* * *

The "Preacher" in the *Tatler*, writing on the "Varsity Vanity Fair," says: I happened on a gentleman yesterday who had last term encountered the small but well-armed tribe of examiners. Finding the questions set altogether beyond his limited power of reply, he wrote his name and College at the head of the paper in the places thereunto appointed, and with the brief and simple commentary "You've won" below, retired from the Chamber of Horrors.

* * *

An Essay on Holidays.

Here is a genuine Chignett Street document (says Mr. Neuman in his collection of tales entitled "Chignett Street"), an "essay" on Holidays, by a collarless boy, rough in appearance and low in his class:

When all of us children came away from school the day we broke up for the holidays, most of the class had happy faces. But when I came away I came away unhappy because when I go away from school for a good time I always have a bad one. I always miss my lessons, got nowhere to go, wear out your boots. It is true I earned 18s. 6d. for my mother but when I was at work earning the money I felt more happier than when I was walking about idle. The holidays are all right when you can go away and with plenty of money and enjoy yourself. I always feel lazy when I do stay away but I feel much better when I go back to the good school.

* * *

The Prodigal Son.

The same writer gives "an anthology of mistakes, all perfectly genuine," compiled by a master who had asked his class to write out what they remembered of the parable of the Prodigal Son. Here is the parable, as made up from the various answers:

A old gentleman had two sons and it was the custome in those days to divide your goods amoung your eldest son. And the youngest boy said "Father, give me the portion of land that falls on me"; and he gave him his share.

And a few mounths after that, the boy gathered all his goods together and took his journey to a forren land and there he waisted his abstinence in righteous living.

And there arose a mighty family in the land and he was so hungary that he filed his boossom with the casks that the swine heards did eat.

And he joined a farmer and he sent him out to feed the pigs; and he would vain have filled his belle with the food that the pigs had eaten and no man gave unto him. And when he came to again he said "How many higher servants has my father got? I will arise," and he got up and went and went, and while he was yet a long ways off his father saw him and he ran to meet him and kneed on his feet and kissed his neck.

And the son said, "Make me one of your higher servants." But the father said to the servant girl "Go and bring fourth the fated carf and put a ring on his fingers and shooes on his feet."

And the elder brother was in the fields and when he heard the row he called the servant and asked her "What's up?" And she said "Your son has come home." And he was angery and he would not go indoors. And his father came out and treated him, but he said, "Low these many years have I served you and you have not given me a little kid, but as soon as this other one comes home who has wasted your living with Charlottes you kill for him the fathead claf."

And his father said "It was meat that we made ready for this my son was lorst and is found again."

ASSOCIATION OF ASSISTANT MISTRESSES IN PUBLIC SECONDARY SCHOOLS.

An Extraordinary General Meeting will be held on Saturday, June 6, 1914, at 2 p.m., by kind permission of the Governors and Miss Heron, at the Wyggeston Grammar School for Girls, Leicester. The following is the agenda: I—(*a*) Minutes, (*b*) Adoption of Report. II—Reports: (*a*) Pensions: An account of the Report of the Departmental Committee on the Superannuation of Teachers. Miss C. L. Laurie.—Resolution: "That this Association heartily welcomes the Report of the Departmental Committee on the Superannuation of Teachers (Cd. 7365). It cordially approves the principle laid down in the Report, that a system of pensions and disablement allowances should be established with the aid of the State for full time teachers in State-aided Secondary and Technical Schools, and urges His Majesty's Government to take such steps as are necessary to give effect to the scheme recommended by the Departmental Committee." (*b*) Registration: Miss E. S. Lees.—Paper, "Imitation, Sincerity, and Imagination in English Composition," by Mr. P. J. Hartog, M.A., B.Sc.

CORRESPONDENCE.

THE WORKERS' EDUCATIONAL ASSOCIATION.

To the Editor of "The Educational Times."

Dear Sir,—In your May number Mr. Albert Mansbridge occupies eight columns in the attempt to show that the Workers' Educational Association was grievously maligned in my review of his book on "University Tutorial Classes." The main points in that review were: (*a*) that the author uses words with an imperfect sense of their meaning; (*b*) that in view of the expulsion of Dr. Michael Sadler from the Presidency of the Leeds Branch of the W.E.A. it can no longer be claimed that the Association is free from political bias, a conclusion supported by an incident in the reviewer's own experience. In his rejoinder Mr. Mansbridge merely adds further evidence in support of the first of these points. He says that quotations are "torn from the book." This is a common feature of quotations, and since our author now elects to stand by them no harm has been done. Especially does he repeat that "the desire for education, as a way of life rather than as a means of livelihood or a mere intellectual exercise, is instinctive among English people, and ready to reveal itself, under favourable circumstances, at any moment." To assume this as a basis of an educational movement is surely to invite disappointment. Mr. Mansbridge quotes against me a passage from the current Report of the Board of Education. Let him now consider another passage, to be found on page 106, line 4. "Among the mass of the nation the growth of belief in education for its own sake is slow." Yet Mr. Mansbridge now tells us that "classes of thirty are now common in English villages. Sweated women turn eagerly to the study of Shakespeare." Surely one is entitled to ask what this means. If on a walking tour we come across an English village which has no W.E.A. class, are we to feel surprise equal to that which would be caused by the absence of an inn or a church? If not, how are we to know when an occasional thing becomes common? And do tired washerwomen now fly to Shakespeare? If these great things have been happening, then the millennium is at hand, with Mr. Albert Mansbridge as its herald. The sad truth is quite otherwise, and it would be

well for the W.E.A. to describe its doings, excellent as they are, in language better fitted to the facts.

On the matter of Dr. Sadler, Mr. Mansbridge is evidently uncomfortable, but he makes a brave show of defending the Leeds Branch. His case is that the action of the University and of its Vice-Chancellor was disapproved by the W.E.A. as being of a partisan character. It would be interesting to know what would have happened had the University declared for the other side. As it was, the resolution dismissing Dr. Sadler said that "his attitude in relation to the recent municipal strike is contrary to the objects of our Association as set out in Rule 3 of our constitution, *and is out of sympathy with the views and objects of our affiliated societies.*" The words I have italicized are important. Doubtless some or all of the societies supported the strikers as they had a right to do, so long as they were not acting as part of the W.E.A. But surely the University and its Vice-Chancellor, acting also in an individual capacity, had an equal right to take the opposite side. If they had not, then it would seem that the affiliated societies are free to exercise political pressure. The whole incident is a striking commentary on a statement in the March number of the "Highway," the W.E.A. journal, which tells us that the Association "aims not at persuasion but enlightenment. It does not merely tolerate differences of opinion, it welcomes and respects them."

As to the evidence of my own experience Mr. Mansbridge must know that I was present and he was not. A working-man representative on the joint committee said that it was essential that he and his colleagues should visit the classes, because they wished to see that the teaching was consonant with working-class views. It is impossible to agree that this only meant that they wished to see whether the tutor was too academic. Indeed, the version supplied to Mr. Mansbridge destroys this notion, for he says: "In certain circles there was considerable suspicion of University teaching in economics and the presence of working-men on the Committee, and their consequent right to visit the classes tended to remove any ground for suspicion." How could this be done unless the visitor came as a censor of the tutor? It is easy to see the probable effect of such visits on a tutor who happens to depend on the work for his living. One can picture his sedulous regard for the views of the "affiliated societies."

Mr. Mansbridge falls into the error of thinking that criticism implies hostility. The W.E.A. has such great possibilities that criticism is necessary and useful. Up to the present the movement has been of the nature of a mission campaign, with emotional appeals and much joy over the converts. But true education demands more than this. The W.E.A. has now to become so organized that a Leeds incident becomes impossible, and its promoters have to understand that those who offer criticism may be moved by feelings other than jealousy towards the W.E.A. student, such as a sincere desire to save him from self-deception.—I am, Sir, yours faithfully,

THE REVIEWER OF "UNIVERSITY TUTORIAL CLASSES."

PRIVATE SCHOOLS RENAMED.

To the Editor of "The Educational Times."

DEAR SIR,—You asked in *The Educational Times* for a fresh name for Private Schools. I have been searching in vain for years for something which would designate our efforts without the tinge of scorn that modern custom associates with that word. For a time I contented myself with "unendowed" (a question of value should in British terms always have connexion with £ s. d.). But you bargained for a positive term, so that was barred. An American volume on Dr. Montessori has just given me an idea. How would "Individual" do? We pride ourselves on giving to the requirements of individual pupils the attention they need; our schools are managed by an individual, or at most by two individuals; there is no question of divided responsibility, and the departure of the head often completely changes the character of the school. The last is a weak spot I own, but the characteristic is not peculiar to private schools, and may be found in a school where a new head is appointed by a Governing Body.—Yours truly,

Wellington College, Hastings. HELEN BATHGATE.
May 12, 1914.

COMPULSORY MEDICAL TREATMENT.

To the Editor of "The Educational Times."

DEAR SIR,—If compulsion really entails the responsibility supposed in the article on "Compulsory Medical Treatment" in your May number, it is to be hoped that our legislators will resort to it as little as possible.

The writer holds that, if the State compels a man to do a thing, however much the thing may seem to be the man's own concern, it is unreasonable of the State to expect the man to pay any part of the cost of his doing it. For "it would be an infringement of individual liberty to dictate to a man on what he should spend his hard-earned wage."

But then if he does not pay it other people will have to pay it for him. How comes it that it would be no "infringement of liberty" to "dictate" to *them* that *they* should spend their money in this manner?

The writer claims that the principle he thus defines has been established by Free Education, and he urges that it must be applied in its fullness to National Insurance; the more because in this case "it is senseless to increase the causes of ill-health in order to cure ill-health."

But surely there is an alternative. Instead of the working-man running the risk of making himself ill by depriving himself of fourpenny worth of nourishment a week, he can reduce by the amount the 5s. a week he, on the average, allows himself for drink, and be content with only 4s. 8d. worth. It would be well to be satisfied that the 5s. is an irreducible minimum before advancing the principle further into the wide fields foreshadowed in the article. F. H.

THE NEXT STEPS IN EDUCATION CONFERENCE.

A CONFERENCE is to be held at London University on June 18, 19, and 20, under the auspices of a committee or representatives of the Fabian Education Group, King Alfred School Society, Moral Education League, National Union of Teachers, Ratan Tata Foundation (London University), School Medical Officers Association, Theosophical Society, Theosophical Educational Trust, and the Women's Industrial Council. The proceedings will occupy both morning and afternoon sessions respectively. It is also hoped to give an opportunity for the informal meeting of those attending the conference in the afternoon after the regular discussion is over for the day.

Among those who have at present promised to speak are Dr. Lewis D. Cruickshank of the Scotch Education Department (Author of "School Clinics") on the School Clinic. Dr. N. Bishop Harman on the Type of School Books affecting the Vision of School Children, Dr. J. Kerr (Research Officer L.C.C.) on Ventilation of Schools, Dr. Letitia Fairfield (Assistant M.O., L.C.C.), and Mr. J. L. A. Paton, M.A. (Head Master Manchester Grammar School) on Sex Instruction, Prof. J. H. Muirhead (University of Birmingham) on Civics, Mr. Cyril Burt, M.A. (L.C.C. Psychologist) on Mental Types and their different educational needs. School Feeding and the Status of the Teacher are other subjects which are to be dealt with, and a number of prominent educationists have already expressed the intention of being present and taking part in the discussion. Admission to the conference will be free, but accommodation can be reserved for those who apply for tickets.

It is hoped that the attendance will be very large, and that the authoritative nature of the papers and discussions will serve to bring educational reforms, rife for settlement, very prominently forward. Further particulars can be obtained from the Secretary, Dr. L. Haden Guest, 16A John Street, Adelphi, W.C.

APPOINTMENT OF INSPECTORS.

The Board of Education propose to appoint shortly some Assistant Inspectors (men) for service in the Elementary Schools Branch of the Board. There will be about seven vacancies. For these particular vacancies applications will be confined to candidates who are over thirty years of age and not over fifty years of age on September 1, 1914, and who have had not less than eight years' experience as teachers in Elementary Schools. *Ceteris paribus,* preference will be given to candidates who have had experience as head teachers. Applications made in connexion with previous vacancies by candidates who satisfy these conditions will receive full consideration on this occasion, and should not be renewed. Applications from new candidates must be made on the prescribed Form, and must reach the Board not later than midday on Monday, June 8. Copies of the prescribed form, together with particulars as to salary and conditions of employment, can be obtained on application in writing to the Secretary, Board of Education, Whitehall, London, S.W.

CONFERENCE OF TEACHERS OF ENGLISH AT STRATFORD-ON-AVON.

The scheme proposed last Autumn to organize a conference on certain aspects of the teaching of English has met with cordial support from educationists in England and abroad. The conference will open at Stratford-on-Avon on August 3, when the Summer Shakespeare Festival begins.

The program of the conference is now announced. It would not be possible to deal in six discussions with all aspects of English teaching; it has therefore been decided that for this year the subject of prose shall be left untouched, and attention is to be concentrated on the study of poetry, the teaching of drama, and the teaching of self-expression in speech and action.

A good deal will be heard of "Oral English," which has become so important an element of education in American schools. Prof. Joseph M. Thomas and Miss Katherine Everts will speak on this subjects. Another visitor from the United States is Prof. S. H. Clark, who has promised a paper on "The Music of Poetry."

The conference, as is fitting at Stratford, is to open with Shakespeare. On Monday, August 3, the chair will be taken by the President, Sir Sidney Lee, and papers on "The Study of Shakespeare in Schools" will be read by Mr. J. H. Fowler, of Clifton College, and Miss McCroben. "The Study of Poetry" is to be discussed on Tuesday, August 4, when papers will be read by Mr. Lascelles Abercrombie, and Prof. Clark, and Mr. John Drinkwater. On Wednesday a paper on "Co-ordinative Speech Training" will be given by Miss Elsie Fogerty, and a paper on "The Use of Phonetics in Teaching the Mother Tongue" by Mr. Daniel Jones. On the Thursday, the "Oral Composition" day, the chair will be taken by Dr. W. H. D. Rouse, of the Perse School. On Friday the subject of discussion will be "Acting in Schools"; Miss Amice Macdonell (representing the Village Children's Historical Play Society) and Mrs. Percy Dearmer will give papers. The closing discussion, on Saturday, August 8, will be on "Shakespeare's Historical Plays in Schools." It is hoped that on this morning the chair will be taken by Mr. F. R. Benson, the Director of the Festival.

Mr. Benson has kindly promised to give, during the week of the conference, a sequence of three of the historical plays: "Richard II," "Henry IV, Part II," and "Henry V." It was thought that teachers would appreciate an opportunity of seeing the three plays acted in succession. Each then, undoubtedly, takes on a much fuller significance than when studied separately. Another special promise for this week is a performance of the entire text of "Hamlet."

For the afternoons a varied program is being arranged, including lectures, matinées, performances of morris dances, and old English singing-games in the garden, and two or three receptions for the members of the conference. The Governors of the Memorial are always glad to make workers in the field of education specially welcome to the Shakespeare Festival, and many pleasant privileges are to be extended to members of the conference.

The Secretary will be glad to send more detailed information to anyone interested. Application should be made to the Hon. Secretary, Conference of Teachers of English, Theatre Box Office, Stratford-on-Avon.

CURRENT EVENTS.

We are asked to state that the County School, Wellington, Somerset, will in future be known as Wellington School, Somerset.

The next examination for the Certificate in Religious Knowledge, awarded by the University of London, begins on June 8.

Performances of the "Alcestis" of Euripides will be given in the open-air theatre at Bradfield College, on June 13, 15, 16, 18, and 20.

The Secretary for Scotland has appointed a Departmental Committee "to inquire into the constitution, control and inspection, management, discipline, education, staffing and remuneration of the staffs, of reformatory and industrial schools in Scotland; into the provision made for different types of children.

In the Council schools of London, teachers and scholars joined in celebrating Empire Day. The ceremonies took place in the forenoon, either before or after lessons, and, when they came to an end, the children were given a holiday for the rest of the day. The playgrounds were tastefully decorated, the Union Jack occupying a prominent position. The parents of the children were invited to attend, and they were present in large numbers. Besides the singing of patriotic songs, the saluting of the Flag, and the march past, there were inspiriting addresses to the children on the duties of citizenship, the speakers, in many cases, dealing with the labours of Empire-builders and emphasizing the necessity of boys and girls conducting themselves so as to be worthy of the great heritage won for them by their forefathers.

The governing body of Shrewsbury School, of which Lord Barnard is Chairman, are about to begin the erection of a block of buildings intended to serve the purpose of a library, a large reading room for the boys, and an art gallery. The building, which will cost about £6,000, will be erected to the west of the school chapel. It is intended to house in the new building the valuable old library of books that belongs to the school. Among them are some extremely rare Caxtons.

The Southampton Education Committee has accepted the invitation of the Mayor of Cherbourg for a hundred children from the elementary schools of the town to visit the French seaport as guests of the municipality at the National Fête celebrations.

The Annual Conference of the Incorporated Association of Head Mistresses takes place on Friday and Saturday, June 12 and 13, at the Redland High School, Clifton, Bristol. Miss Robertson, of Christ's Hospital, Hertford, will preside.

The London County Council has been asked to contribute an exhibit to the Exhibition at Essen in May and June 1914, and it has been requested that a number of English teachers be sent to visit the Exhibition. The Teaching Staff Sub-Committee report as follows:—"We are of opinion that a visit of this kind would be of considerable educational value, and we propose that six teachers from elementary schools should be granted leave of absence with full pay for the three days following the Whitsun holidays." The teachers selected will be required to possess a knowledge of German.

The Conference of Teachers in Technical Schools opens at Liverpool at Whitsuntide, and continues until June 3.

The Teachers' Guild have just issued a new edition, revised up to date, of their invaluable "Holiday Resorts," in which are

to be found addresses of families taking guests, boarding houses and hotels, in all quarters of the globe.

THE governors of the Cambridge County Boys' School have, by special resolution, granted to the assistants the right of appeal, and of appearance in person when any disciplinary measures affecting the assistant masters are proposed.

THE Teachers' Guild have arranged a Holiday Course in English for Foreigners, to be held at the Garden City, Letchworth, August 1 to 22. Program, printed either in French or German, can be had on application to the Secretary.

IT is announced that the Rev. W. Temple, Head Master of Repton School, has been appointed by the Lord Chancellor to the Rectory of St. James's, Piccadilly.

PRIZE COMPETITION.

PRIZES are offered each month for the best replies to the subject set. Competitors may, if they wish, adopt a *nom de guerre*, but the name and address of winners will be published. Competitions, written on one side of the paper only, should be addressed to the Editor of *The Educational Times*, 6 Claremont Gardens, Surbiton, and should reach him not later than the 15th of the month. As a rule competitions should be quite short, from 100 to 500 words.

The first prize will consist of half a guinea; the second prize of a year's free subscription to *The Educational Times*. It is within the discretion of the Editor to award more than one first prize, or more than one second prize. Cheques are paid on or about the quarter-day following publication.

A prize of half a guinea is awarded to Miss V. K. Edwards, "Selborne," Leicester Road, New Barnet, N.; and a second prize to Mr. W. D. Roberts, 16 Cheriton Gardens, Folkestone.

SUBJECT FOR JUNE.

The Teacher finds out in the evening that he has made a definite misstatement in class during the day. Assume a sample error, and show how you would deal with the matter next morning, keeping specially in view the age of the class concerned.

The following are some of the qualities one looks for in a school motto:

1. It must be brief. The following from Longfellow is disqualified by its length, though otherwise suitable:

> Bear through sorrow, wrong, and ruth,
> In thy heart the dew of youth,
> On thy lips the smile of truth.

Indeed, by omitting the first line altogether we get quite a satisfactory motto. Few of the competitors err on the side of length.

2. It must be inspiring. The pessimist who sends "If youth but knew" does not quite understand her business. It is a man who submits *Carpe diem*: but it is a lady who gives us the choice between "Youth's a stuff will not endure" and "Gather ye roses while ye may." Obviously these are out of the question, and in all probability the competitors who sent them know this perfectly well. "Labour and make music" is inspiring enough, and as a matter of fact is use in a large school for girls. Browning's "Beauty, knowledge, strength should stand alone" is didactic rather than stimulating. More suitable is his "A great is better than a little aim." Tennyson's "Better not to be at all than not be noble" has its good points, but his "Hold thou the good; define it well" has the advantage of a more positive position. Less elevated, and with a suggestion of an *arrière pensée*, is the straightforward "Strive to do what is right because it is right, and not from fear of punishment." It is hardly necessary to class "Abandon hope all ye who enter here." This cannot be the work of a genuine competitor. He is evidently a man who has not a high opinion of the newer Municipal Secondary schools. His hostility is shared by a surprisingly high percentage of those who have sent in mottoes, as will be seen under the next heading.

3. The motto should have a special bearing upon the kind of school in view. The civic side here calls for emphasis, and gets it in such a motto as "The noblest motive is the public good." The same point is brought out in the "Patria cara, carior libertas" of another competitor. But she forms an exception in this respect, that almost all the foreign mottoes come from people who have little love for the kind of school suggested. A certain bitterness lurks under "Pueri populi, pueri dei," a sort of reminiscence of increased taxation. The same competitor gives the alternative "Dabit deus his quoque finem," and with this parting shot, as the novelists say, passes out of these pages. We suspect that not all our competitors are teachers. The pupil's point of view is too sympathetically dealt with upon occasion. "Fas est ab hoste doceri" has an ominous suggestion of hostility to the teaching staff. One sympathetic person needs the help of two languages to express his feelings for the hard-worked pupils: his Latin tells us that "Vincit qui patitur," and his Spanish adds "Sufre por saber." At any rate he appears to admit that if the way is hard the pilgrims at least attain their goal. More sympathetic and not less appropriate is a lady's suggestion "Aptare se pugnae," which will certainly commend itself to most of the administrators of English education, though it is doubtful if they will like the plea for more money veiled in the "Magnas inter opes inops." The sympathizers with the trials of the pupils do not confine themselves to the foreign languages. The following couplet from Herrick is too long, but in any case one wonders whether the sender thinks it specially applicable to Municipal Secondary Schools:

> Tears quickly dry; grief will in time decay;
> A clear will come after a cloudy day.

In any case the man who sends "Disce aut discede" may or may not be aware that the motto is already appropriated as a secondary motto by Winchester, but he has hit upon a motto that emphasizes an important aspect of the newer schools. In the older schools learning occupies a somewhat subordinate place. In the schools that the competition had in view knowledge is placed in the forefront. In the newer schools the pupils must work. It does not follow that they do not attend to other matters—it is one of our embittered contributors that sends "Vita sine litteris mors est"—for every secondary school may fairly claim as its sub-motto the primary motto of Winchester "Manners makyth man." Yet the "Disce aut discede" is specially applicable to the newer type of school, and reads much pleasanter than Mr. Peter Keary's equivalent, which, in fact, makes not a bad translation: "Get on or get out."

4. Peter Keary naturally suggests the fourth quality essential to a motto, which is euphony. It should flow easily. If it is longish it ought to have rhythm, if not rhyme as well. Alliteration is less objectionable in mottoes than elsewhere. This quality of euphony was quite prominent in the mottoes sent in, though it was purchased at the price of originality. Almost none of the mottoes submitted were home-made. They were almost without exception quotations. Nor can any real objection be raised to this leap-frogging into the subject on the backs of standard authors. After all, a certain charm attaches to a familiar quotation used in an unusual connexion. A motto is something that is expected to become very familiar by use, so that if it starts as something familiar there is a certain initial impetus along the road we want it to go. There is plenty of room for originality in the applications made of recognized phrases, and whether we agree or not in the spirit that prompted them, we cannot but recognize considerable ability on the part of those who have suggested disagreeable things by apparently innocent mottoes.

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SANE SEX TEACHING.

III.—IN BOYS' SCHOOLS.*

By ERIC PRITCHARD, M.A., M.D.

IN a short article, such as this must necessarily be, it would be impossible to describe in detail the required steps for instructing boys or adolescents in the essentials of sexual hygiene. I can only hope to outline in the very briefest manner certain of the general principles which I conceive should be observed in education of this kind, and then, if space permits, to criticize some of the erroneous beliefs which are commonly held with regard to the physiology of the sexual functions. It is important to possess accurate information on these matters, because it is clearly unwise to employ unsound and unscientific arguments even for the attainment of such praiseworthy objects as sexual continence and chastity.

Although I am not commissioned to deal with this part of the program, I would here endorse what has already been said in this series of articles with respect to the great advantage of giving all children, whether girls or boys, a preliminary grounding in the physiology of animal and vegetable reproduction. A rationally devised course of Nature study, with special reference to the great biological principles concerned in evolution and the maintenance of type, would be a very suitable introduction to the fuller knowledge of the reproductive functions in human beings which is indicated at the age of puberty. Such knowledge would insensibly inculcate sentiments of reverence and respect for the altruism of maternity and for everything connected with the functions of reproduction, and so help to make comparatively young boys realize, in a genetic or eugenic sense, their responsibilities as potential fathers of the race. The exact age at which

* Previous articles appeared in April and May.

boys should be initiated into this fuller knowledge must necessarily depend on circumstances, and on their particular temperaments. Such instruction might be combined with that which is given in preparation for Confirmation. I do not think, however, that it should be deferred beyond the time at which boys are commonly mystified by, or at times alarmed at, the advent of those involuntary sexual crises which occur during sleep. The physiological significance and purpose of these nocturnal visitations should be clearly explained to boys at or about the age of thirteen. A little later the more difficult question will arise as to how best to warn the boy of the dangers and temptations which will beset him in association with the voluntary gratification of the sexual impulse, and of the serious consequences to health which ensue if the system becomes infected with the virus of venereal disease. In my opinion this duty is better performed by the family doctor, or by the school doctor, than by the parent, for, unless so delicate a duty is performed with tact and knowledge, there is a danger of inspiring that *pavor sexualis* to which I referred in my introductory article,* and in this connexion I would impress on my readers that I am thinking more of the five million imperfectly educated fathers of the proletariat than of the five hundred thousand better informed fathers of the educated classes.

To a boy duly impressed with the biological significance and importance of the sexual life of the individual, the pornological and pornographical stock-in-trade of the already corrupt schoolboy seems "stale, flat, and unprofitable." Questions of sex almost necessarily possess strong fascinations for the adolescent boy, and, in my opinion, this natural curiosity should be satisfied in a scientific and rational manner by a properly qualified instructor; but the disproportionate hold these subjects usually seize on a boy's imagination is largely attributable to the policy of secrecy and obscurantism which parents and teachers often pursue in relation to the sexual facts of life. The discussion of these subjects should be elevated, in a biological, racial, personal, subjective, and objective sense, to the highest possible intellectual plane; it should not be allowed to rank in the same category with the skatological and coprological conversations which appeal to prurient-minded schoolboys. It is because so much mystery is made of these perfectly natural phenomena that boys are apt to attach undue importance to them. "Omne ignotum pro magnifico!" Boys should be taught to realize that there is nothing essentially impure or disgusting, or indeed mysterious, in any of the physiological phenomena connected with the bodily functions, that discussions about them only become objectionable when they are held at the wrong time in the wrong company, and that such conversations, like other forms of dirt, simply represent matter out of place.

In my opinion neither exaggerations nor untruths should be employed as deterrents to frighten boys out of habits of manustupration or other perversions. Such inefficacious expedients are at times resorted to partly through want of correct knowledge on the part of the teacher, partly as a deliberate attempt to take advantage of the ignorance of the taught.

It is certainly a common belief among a large section of the laity that serious mental and physical disabilities, such as idiocy, insanity, neurasthenia, and stunted growth are to be explained on the grounds of vicious habits. Such a view is quite unjustifiable, and a perversion of the truth; it is putting the cart before the horse. Although undoubtedly great excess in this direction has a debilitating influence, we know only too well that inveterate habits of masturbation, as well as other perversions, are not infrequent manifestations of defective states of mind, but such practices must be regarded as the results, not the cause, of the mind diseased.

The position of the would-be instructor in morals is clearly weakened when he makes statements to which the common experiences of life give the direct lie. It cannot carry conviction to tell a boy that he will never acquire academic or athletic distinction if he indulges in bad habits, when the boy himself has probably the best of reasons for knowing that the head of the school, and the captain of the cricket eleven, are in this respect serious offenders. Explosive bogies of this kind, which are founded on a false physiological basis, seldom or never achieve the ends aimed at, and they are liable to fire back and damage the hand of authority. If it becomes desirable or necessary to save a boy from the tyranny of evil habits, it is far better to speak to him truthfully and sympathetically, exaggerating nothing and extenuating nothing. If a little trouble is taken to explain to him the physiological basis of habits, and the tyranny they exercise when they become deeply rooted, he will be in a better position for appreciating the meaning of character and its dependence on a capacity to resist temptation in small matters as well as in great. If you tell a boy that he is unlikely to command the confidence of others unless he can trust himself, he will understand without much further explanation that positions of responsibility and honour will not fall to his lot unless he at once adopts an attitude of mind conformable with the attainment of his just ambitions. It is quite easy to explain to intelligent boys that the most serious consequences of indulging in vicious habits are not so much physical or mental as moral. The demoralizing effects of secret practices undermine character and self-respect.

I do not propose here to lay stress on the difficulty of preventing the establishment of, or of curing, perverted sexual habits through the exclusive medium of disciplinary supervision, dogmatic religion, or dietetic regimens, but I feel it only right to traverse, on physiological grounds, the view that athleticism and physical fitness are in themselves capable of saving a boy from the domination of his exuberant animal nature.

It may be accepted as a physiological axiom that the more physically fit a boy is—in other words, the better animal he is—*ceteris paribus*, the more functionally active will be that particular part of his animal nature which subserves the sexual functions. This, I imagine, is one of the important principles in the scientific breeding of animals, and it has, of course, applications in eugenics or genetics. On the other hand, it is quite true that, if a boy has counter attractions in intellectual or physical pursuits and is actuated by ambitious motives to excel in one or many directions, his common stock of nervous energy will be diverted from the short circuit of sexual realization into other and more profitable channels.

It is quite certain, however, that a boy can be at one and the same time, a first-rate athlete and a first-rate transgressor against the canons of sexual morality. Physical fitness is not *per se* a prophylactic against lapses from virtue, but indirectly it may be of the greatest assistance, for the con-

* See *The Educational Times* for April.

centration of mind which the attainment of such a physical state entails is itself an occupation for the nervous system and a safeguard against those forms of sexual mischief into which the idle nervous system is prone to fall. The nervous system cannot attend to more than one class of business at a time, and when unoccupied allows its common stock of energy to flow along those channels which, by reason of habit, experience, or practice, are worn the deepest and offer least resistance to the current.

I am often asked whether it is possible, or reasonable to expect, that a strong healthy boy can so subdue his animal instincts as to be able to pursue a life of complete sexual continence. That such continence is a physiological possibility is beyond doubt, for many boys have lived up to this standard of sexual morality, but equally there can be no doubt that in many cases such self-restraint entails much physical and mental agony, especially when the nervous channels connected with an imperative eroticism have been opened up by pre-existing habits, but happy are those heroic martyrs who acquire a habit of enjoying tortures of this kind for conscience' sake, and can refrain from these acts which are apt to undermine self-respect and character.

THE VILLAGE SCHOOL.

A PARAGRAPH in a local paper runs somewhat as follows :—

> On Friday afternoon there was an interesting function in the village school of ——, when the children sang and recited, and a party of five little mites took part in a playlet called "Making the Pudding." The Rector of the Parish presided, and prizes for attendance were presented by the Squire's Lady. A distinguished gathering of the gentry was present, and expressed much gratification in the entertainment provided. We congratulate the Managers of the school on their selection of a competent staff of teachers, and the teachers themselves on the excellent work they have done during the year. Toys and sweets were given to the children at the close of the afternoon.

As a statement of facts this item of news is correct enough, and it is not difficult to read between the lines so as to clothe the bare bones of newspaper report with the living flesh of achievement. The Rector was suitably absent-minded, announcing that the Squire's Lady would present the prizes and beginning the distribution himself. The audience applauded as they were expected to, and remarked at intervals, "How wonderful!"—"Just fancy!"—"One could never have believed it!"

The imagination of some amongst those present was stimulated to giddiness at the thought of all the patience and care implied by the children's performances, and the "competent staff of teachers," consisting of the governess (as she is always called, respectfully and affectionately), and her assistant (known as the teacher), stood by and directed, effacing themselves as far as possible. As regards toys and sweets, for an hour after the school was closed all salutes were given as though with tongue in cheek, and pipes shrill in the village street to this day, piercing the fog that comes up from the sea or helping the warm sun to shine yet more warmly and brightly.

In this village school—a large, lofty room, divisible into two by a partition of wood and glass—upwards of fifty children are educated. Their ages range from four to fourteen, and the usual elementary subjects are included in the curriculum. These need not concern us, for it is education rather than teaching which is the interesting factor in school life. To draw out, rather than put in, is the aim of the governess; to stimulate what is latent, rather than force an artificial, hot-house growth, quite unfitted for the after-life on clay field, in carpenter's shop, in home and dairy.

And for these vocations two things are necessary above all others—manners and memory. (The alliteration is a little unfortunate, for it tends to cheapen the plea. It will be forgiven by the faithful.)

It is, in some respects, a far cry from Winchester to the Village School, but the great motto holds good, and, for all the regrettable side issues of democracy, manners still count. We do not expect our agricultural labourer to be at home in the drawing-room, or, if we do, we confuse ourselves by attaching too narrow a meaning to the words courtesy and neighbourliness. We do not expect the dairy-maid to exhibit the polished tact possessed by her mistress, but she will churn the better for being easy with her comrades and respectful to her "elders and betters." The governess makes an appeal to "good form," and explains the trick of salute and curtsy. When a stranger enters the school, the children stand and bid him "good afternoon." Outside the school they become accustomed to the commerce of everyday salutation; they like to "pass the time o' day" with their mates. The sceptical may regard all this as mere top show, not worthy of the time spent in acquiring it; but manner counts for more than that, and, as the sceptic often has an eye for mercenary advantage, he may be kind enough to remember that the first question about a new employee is, what sort of being does his manner represent him to be? Even the roughest show their inner qualities by their way of speaking and looking. Sometimes, of course, the employer is deceived, but that is chiefly because he fails to distinguish between true manners and false.

The necessity of well-trained memory needs no special pleading. Rare praise is sometimes given by farmer, builder or housewife in such words as these: "Quite a valuable help to me. Explain a thing once and it's never forgotten." It may be objected that this laudation applies less to cultivated memory than to natural ability to grasp a new idea quickly, an ability often more noticeable in the town child than in his country brother, but it seems reasonable enough to reply that for practical purposes the distinction may be ignored in considering the education of a country child. Training of memory must surely involve quickening of perception, and the governess, working on that basis, achieves some measure of success. The unfortunate thing is that "once explained never forgotten" should be rare praise instead of everyday remark. The imperfection is not due to lack of training in the village schools, but to lack of proper home influence and material deficiency of the pupils. Where all the adult population of a parish are more or less closely related you do not get the best possible offspring. It is constantly noticed that the brightest children are those whose parents have come from different parishes and who have no large circle of cousins, aunts, and uncles.

Good results are obtained from singing, but better, it would seem, from recitation accompanied by gesture and action, an elementary form of eurhythmics. The child mind craves reality and abhors abstraction. That perhaps is why babies of four and five do better in a long rhymed piece when they have their hands in the materials for making a pudding, than an older child in reciting a short poem on more or less theoretical morality. Incidentally, representation in rhythmic form with realistic accompaniments goes a long way towards removing the very legitimate objection to learning by heart as that phrase is commonly understood. The governess does not hold herself guilty of forgetting Spencer's dictum, or the famous aphorism of Montaigne quoted by him: "Sçavoir par cœur n'est pas sçavoir." And if happiness be the true test of efficient education there is no doubt that for the average child building with sticks is better than hearing about bird's nests. The best is obtained when the child builds and explains why and how he builds. If the explanation can be given suitably in rhythmic form we may look for "*a* plus."

Admitting the faddism, one cannot help remarking on the improvement in pronunciation achieved by the governess. Clay soil and sea fogs produce raucous voices, with a predominance of vowel sounds represented by *aw* and *oo*; and to make music of the one and English of the other is worth while. The strength of dialect does not consist in pronouncing "nothing" as though it were written "nawthin," or making "goo" serve for "go." What we should rather try to keep are the expressive and vigorous words and phrases like "clungy" (stiff and sticky, *e.g.* a clungy field), "stetch" (in ploughing, the width of a regular number of furrows, usually six or eight), "beaver" (a meal between breakfast and midday), "all your masters" (lustily, *e.g.* birds singing "all

your masters"), and even perhaps "I have went," for sake of its Saxon flavour. But this paragraph is an interpolation, and must be cut short.

There is yet one point to be mentioned in direct connexion with the "interesting function in the village school." Teachers in these schools are too often isolated from their fellow-kind, too often left to plough and sow and weed unhelped by social intercourse or friendly word. They are paid for their work, they do their work, they go away. Frequently that is all. An afternoon's entertainment, with performance and applause, does a little towards making school activities part of the corporate parish life, but there might with advantage be something more. with benefit not only to teachers and schools, but to village society generally. Or—terrible thought—would such a state of affairs mean more educational work for the teachers? If so, let things be as they are. The governess and her assistant earn all they get, in little money, some appreciation, self-culture, and that reward which is solely virtue. JOHN HENDERSON.

THE COLLEGE OF PRECEPTORS.

MEETING OF THE COUNCIL.

A MEETING of the Council was held at the College, Bloomsbury Square, W.C., on May 16. Present: Mr. R. F. Charles, Vice-President, in the chair; Prof. Adams, Prof. Adamson, Dr. G. Armitage-Smith. Mr. Barlet, Rev. J. O. Bevan, Rev. J. B. Blomfield, Mr. F. Charles, Miss Dawes, Prof. Dixon, Mr. Eagles, Mrs. Felkin, Rev. R. Lee, Mr. Longsdon, Mr. Pendlebury, Mr. Rushbrooke, Rev. C. J. Smith, Mr. Starbuck, Mr. Storr, Mr. Thornton, Mr. Vincent, and Mr. Wilson.

Diplomas were granted to the following candidates, who had satisfied the prescribed conditions:—*Licentiateship:* Edward William Shanahan; *Associateship:* William Patrick O'Callaghan, John Benjamin Liverpool.

Sir Philip Magnus was re-elected President of the Council, and Prof. John Adams, Mr. R. F. Charles, and the Rev. Dr. Scott were re-elected Vice-Presidents of the Council.

Mr. W. G. Rushbrooke was re-appointed Dean of the College, and Dr. G. Armitage-Smith was re-appointed Treasurer of the College.

The Rev. Dr. David was re-elected a Member of the Council.

Dr. N. Sprankling was appointed an additional Examiner in Music.

The Moderators, Examiners, Revisers, and Inspectors for the year ending May 1915 were appointed.

The Rev. J. O. Bevan, Mrs. Felkin, and Mr. Millar Inglis were appointed to represent the College at a meeting of the Imperial Union of Teachers which is to take place at Caxton Hall, Westminster, on July 18, 1914.

Mr. Thornton was appointed to represent the College at a Conference on Further Education which is to be held at Letchworth on July 25 to 31, 1914.

The following dates were fixed for meetings of the Council from June 1914 to May 1915:—June 24, September 26, October 24, November 25, January 30, February 27, March 27, May 15.

Saturday, October 24, 1914, and Saturday, March 27, 1915, were appointed the dates of the next two Ordinary Half-Yearly General Meetings of the Members of the College.

It was resolved that a reduction of 25 per cent. be allowed to members of the College for advertisements in *The Educational Times* of posts vacant and posts required, and for advertisements of a purely personal character.

The following persons were elected Members of the College:—

Miss F. E. Cheek, Oakwood School, 1 Victoria Villas, Brondesbury Road, N.W.
Miss M. Heeley, A.C.P., 67 Franchise Street, Perry Barr, Birmingham.
Mr. W. C. H. Napier, "Combe Martin," Northern Parade, Portsmouth.
Miss C. E. Risbee, St. Michael's Avenue School, Northampton.
Mr. E. Willmore, A.C.P., 162 Rock Avenue, Gillingham, Kent.

The following books had been presented to the College Library since the last meeting of the Council:—

By the AUTHOR.—J. E. Roscoe's Dictionary of Educationists.
By the DEPUTY MINISTER OF LABOUR, OTTAWA.—Report of the Royal Commission on Industrial Training and Technical Education (Canada), 3 vols.
By A. & C. BLACK.—Reynolds's Junior Regional Geography—Asia.
By BLACKIE & SON.—Blackie's new Systematic English Reader, No. III; Blackie's Practical Phonic Primers and Infant Readers, 4 Parts; Blackie's Rambler Travel Books (The British Empire); Alston's How to Speak and Read; Davis's Young Teacher's Primer; Findlay and Steel's Educative Toys; Fry's Arnold's Forsaken Merman; Leather's Book of National Games; Prideaux's Survey of Elementary English Education.
By HACHETTE & Co.—Valette's L'Anglais par Vous-même.
By MACMILLAN & Co.—Hearnshaw's First Book of English History; Saintsbury's First Book of English Literature.
By METHUEN & Co.—McKay's Child's Book of Arithmetic.
By the OXFORD UNIVERSITY PRESS.—Bryant and Lake's Elementary Latin Grammar; Collitz's Selections from Classical German Literature; Robertson's Keats's Isabella; Spicer and Pegler's Elementary Book-keeping.
By RELFE BROS.—Latin Vocabulary; Junior Contour Atlas; Brabant's Test Papers on the Army Mathematical Syllabus; Hodgson's Practical Geometry for Junior Examinations; Perrault's Contes des Fées (2 Parts); Soullier's Easy French Phonetics, and Simple Lessons on Free Composition in French; Taylor's Old Testament History, and Junior Geography and Atlas.
By the UNIVERSITY TUTORIAL PRESS.—Jeffrey's Scott's Lay of the Last Minstrel; Watt and Collins's Selected Essays of Bacon.
Joint Scholarships Board Year Book.

EXAMINATION OF FOREIGN TEACHERS FOR CERTIFICATES OF PROFICIENCY IN ENGLISH.

ON the results of the examination which was held in May, 1914, Miss M. F. Wessberge was placed in the Honours Division.

REVIEWS.

Chignett Street, A Provided School. By B. Paul Neuman. (6s. Smith, Elder.)

This book does nothing to remove the stigma from teaching of being "the inarticulate profession." For skilfully as the matter is presented the credit must go to one who is not a teacher. Mr. Neuman is quite evidently at home in an elementary school, but there is no evidence that he has ever taught in one. We are not so sure, however, about his official connexion with elementary-school boys outside of school hours. There we should imagine we would find him upon his own ground. It is not difficult to give a name to the person who occasionally appears in these pages as the Enthusiast. The book does not challenge comparison with Mr. Paterson's admirable "Across the Bridges." Mr. Neuman deliberately approaches the matter from the artistic standpoint. It is true that he gives a twenty-four page Introduction, in which we find an excellent statement of the conditions of the cases he is about to describe, but the interest of the book lies in the incidents themselves and the artistry of their treatment, though it is impossible for the author to treat of such matters without at least implying certain practical applications that might be, or ought to be, made.

Chignett Street is a typical school that is a sort of composite photograph of the various elementary schools in North London with which the author is acquainted. The buildings, the staff, and the surroundings remain the same throughout the book, and it is a little difficult to justify the division of the sketches into two groups: the Old Order and the New Order. We suppose the basis is a chronological one, but though the New Order has references to such matters as Care Committees and the Ladder, we must pay Mr. Neuman the compliment that his treatment has such a broad basis in the universal elements of boy nature that we fail to see any important difference between the two parts. A marked characteristic of the book as compared with most school stories is the attention paid to the actual work of the school. We are told that the masters looked, and were, over-worked; but we are not put off with a general statement. We see them at it. Games have quite a reasonable place in the book, but they do not dominate as they usually do. The secondary-school master will be inclined to think that the boys at Chignett Street are represented as too old for the years with which they are credited. But those who know the Board-school boy best will be the least willing to admit that Mr.

Neuman has exaggerated. What he has done is to give a practical illustration of that distinction between the boy and the schoolboy on which Mr. MacMunn lays such stress. No doubt there is an occasional yielding to the almost irresistible temptation to sentimentality that appears to beset all writers of school stories, but the author has been able to maintain a high level of verisimilitude. Generally speaking his boys are real live creatures that interest us by a humanity that is always genuine and sometimes generous. Some are more convincing than others, and some are more convincing at one time than at another. Of these piebald characters the most striking is the Terror, who is painfully convincing for sixteen pages and cheerfully unconvincing for two. There is a considerable amount of interest for us in the sketch of the Born Teacher, in which we have a concrete example of Mr. Bernard Shaw's hard saying: "He who can does, he who cannot teaches." Gibbs, commonly called "Granny"—an ominous professional reference, surely—tells us "I can't do things, sir, —but I can often get other people to do them."

Another sketch that has an especial appeal to the professional reader is "The Fate of an Old Master." It would be interesting to get the opinion of a committee of elementary assistant masters on the possibility of such an incident. It appears to us in the highest degree improbable that a master could have worn himself out in class teaching without ever having discovered the practical value of his exceptional gift of drawing on the blackboard. But the tale is well told, and if not convincing is at least very pleasing. The same may be said about the story of "The Angel." Here again there are many things that the experienced elementary teacher will want explained; but the narrative runs so well and conduces so much to high spirits that the critic is inclined to be indulgent and to thank Mr. Neuman for the unexpected brightness that he casts over what is usually a scene of gloom. It is not everybody who can make humorous capital out of what happens in certain dismal rooms at the L.C.C. Offices on the Embankment.

The elementary teacher will read this book with interest and general approval: the secondary teacher will be surprised how good it is for him to have read it: the general reader will find in its pages a very happy combination of instruction and entertainment.

A Path to Freedom in the School. By Norman MacMunn. (2s. net. G. Bell.)

In this little book of 162 pages Mr. MacMunn develops the ideas set forth in his pamphlet on Differentialism, in which he outlined a scheme of teaching by means of partnerships among the boys at school. On its theoretical side the present book is frankly based upon the root idea of Dr. Montessori. Its author has, in fact, at once applied the Montessorian ideas to higher classes, without waiting for the results of the experiments of the Dottoressa. Two of the main theses of the book are (*a*) that the present distinction between work and play is mischievous and unreal, and (*b*) that the boy and the schoolboy are two totally different persons, and that the ordinary teacher spends all his time in the unprofitable work of turning the wholesome boy into the sophisticated and inaccessible schoolboy.

It appears that Dr. Montessori claims to have rung the death knell of the system of class-teaching. She may have begun the ringing, but it is likely to be a long job, and the lady will certainly need to hand over the bell ropes to her successor, for the funeral will not be comsummated in the lifetime of the present generation. Mr. MacMunn recognizes this, for he clearly distinguishes between class teaching and collective teaching. It is possible to organize by classes and yet to carry on the work of teaching in such a way as to bring out all the advantages of recognizing the peculiarities of the individual. The book is written in the true spirit of the enthusiastic reformer. We are told that "we have been working for thousands of years to a wholly wrong conclusion. It is a dreadful thought that through all these ages we had no single child educated intelligently in an atmosphere of active freedom." But now we have the New Child, and the New Schoolmaster, and the New School, and the New Method, and everything is going to be all right. But Mr. MacMunn is a practical schoolmaster as well as an educational enthusiast, and he claims to have at the back of his theories a record of practical results. In his own subject. Modern Languages, he has applied his plan of freedom and partnership, and has been amazed at the success he has achieved. He does not expect to carry the profession off its feet. He admits that even "a considerable portion of a century" may have to elapse before his plans are adopted in their entirety—but he has no fear of their ultimate success. Further, he has not thought of sitting down and allowing things to go along at the normal pace of reforms. "This is one of the cases in which revolution is better than evolution." So we know what to expect.

It is well for our profession that we should have books like this hurled at us from our own ranks. Mr. MacMunn does not minimize the difficulties of the position, but he presents his case in a way that will make the most conservative among us take notice. The freedom that he demands is far from being an encouragement to either licence or caprice. Further, it is not limited to class work, for it is to permeate the whole school. No teacher can read the book without learning something to his advantage. What will certainly recommend it to the practical teacher is the fact that it is not all theory. Indeed, the book is actually divided into three separate parts: Part I, The Theory of Child Emancipation; Part II, The Practical Solution; Part III, The Commonwealth School. It is a book that will attract all live teachers, and even the moribund will find it difficult to resist its charm.

School and Life. By Various Writers. (2s. 6d. net. G. Philip.)

The title of this book is singularly inept, and should have given place to the sub-title, which reads "A Brief Record of the Life and Work of Maria Elizabeth Findlay." It is really a well-deserved memorial volume "at the address of" one of the best of our modern women educators. We are told that Mr. Claude Montefiore "has enabled the book to be published," and he and the various authors have deserved well of the profession by supplying this outline of the life and influence of a remarkable woman. The book is made up of three parts. The first is biographical, and consists of two papers, one by Miss Lawrence, of the Froebel Institute, and the other by Prof. Findlay, who writes briefly and becomingly of his sister. Part II consists of three papers written by Miss Findlay herself. The third part is taken up with an account of Mayland Mill School, where Miss Findlay did such excellent work during the three years of its existence. For the reader who had not the advantage of knowing Miss Findlay the main value of the book will be the *obiter dicta.* When a woman of such wide and exceptionally varied experience speaks on the principles of her work she is worthy of all attention, and the reader will get up from the book with the feeling that he has enriched his knowledge of school life and school possibilities. There is perhaps a sense of lack of unity in the book. Probably this is unavoidable under the circumstances, and in any case the various authors deserve our thanks for their pious work.

OVERSEAS.

Admiral Chadwick's recent article on "The Women Peril in Education" has roused echoes that go rumbling on through all the magazines where women have a chance of presenting their case. In the May number of the (New York) *Educational Review* Laura L. Runyon deals faithfully with the Admiral in an article to which he would have little difficulty in making a crushing reply. The argument from motherhood is singularly out of place in a discussion of the effect of spinsters as the official educators of boys. The *Review* contains a very appreciative note on the second

volume of the University of Manchester's *Demonstration School Record.*

The *English Journal* (Chicago) for April contains an instructive account of the results of an experiment to determine the relative values of oral and written composition. The experiments were undertaken by thirty schools, and of these twenty-three submitted complete reports. The conclusions "strongly support the contention that a large amount of time should be given to oral exercises in the high school." The work of those who had combined oral with written composition was better in thought and showed more vigour, freedom, and interest than that of those who had been confined to written composition. Those who had received oral training "were more competent in point of grammatical and rhetorical structure. They were no worse in spelling and punctuation, and they were better in handwriting." Those who had been confined to written work "had deteriorated in penmanship during the period." These are not quite the results that one would have expected, and the general effect of this and similar experiments is to impress upon teachers that the day of individual impressions about methods is past, and that we must get at the truth by community of effort. The *English Journal* is doing capital service in this direction.

Education (Boston) for April has a note that cannot but prove disturbing to those who are responsible for the public education of a country. It appears that a large business concern in Chicago is so dissatisfied with the results of public school education in that district that it has established a school on the premises to make up deficiencies in the education of the young people whom it employs. "The plan originated in the stockyards plant of Swift & Co. Daily sessions of the school are held. Officials of the company say they have found it cheaper to give their employés this direct and easy opportunity than to use the slower process of teaching the new assistants in their daily work in the offices. The continuation school at the Swift plant yesterday held eighty-six pupils. The pupils, all of whom were boys, ranged in ages from fourteen to sixteen years. Almost all were graduates of the Public Schools. The subjects taught were arithmetic, spelling, and geography. The rudiments of these subjects are imparted in order to supplement the public school education with such actual knowledge as may be necessary in the performance of the duties to be taken up by the students. 'The boys being instructed here are messengers and office boys,' says Lewis Atherton, chief instructor at the school. 'The subjects taught are those that are absolutely necessary to make the services of the boys worth the salaries paid to them.'" *Education* has an editorial that will distress Sir William Nicoll, who recently had a "grumble" in the *Daily Mirror* about the pernicious habit of opening windows. It appears that experiments have been made to test the sort of work done in school under the conditions of open and closed windows respectively. "It was found at the Bache School in Philadelphia, where careful tests were made last year, that pupils taught all through the winter in rooms with the windows wide open, did better work, enjoyed better health, and as a consequence were more regular in attendance than their fellows taught in the warm air rooms."

The *School Review* (Chicago) for May has a vigorous article entitled "The Plague of Personality," in which the author, Mr. McAndrew, takes seriously to task all head masters, school superintendents, directors of education, and others placed in positions of authority in schools and colleges. He urges them all to take themselves in hand if haply they may even yet be able to make headway against their ingrained tendency to egotism and cocksureness. The article makes excellent reading for young and discontented assistant teachers, who will read with some satisfaction Mr. McAndrew's prescriptions for the cure of the various ills to which authorities are liable—oracularism, bossism, limelightism, and the more commonplace general egotism. Mr. Shaw is quoted to the shame of the educator. "I knew he was an educator," says Mr. Shaw, "because he was talking the whole time about himself." We always suspected that Mr. Shaw was a bit of an educator. Mr. McAndrew is severe, but we cannot but sympathize with him when he says: "Egotism in a schoolmaster should seem like vice in a clergyman. For what is systematic education but organized unselfishness. Its whole aim and processes are the assisting, guiding, and training of others. It would not hurt the schoolmaster to blot the first personal pronoun out of half of his vocabulary." This diatribe, however, is not discharged into the air. It has a practical purpose behind it, since its author, who is Principal of the Washington Irving High School, New York City, is promulgating a scheme for "Teacher Councils," in which the ordinary members of the staff may have a share in determining the general policy of the school, a little after the pattern of the German staff meetings, though naturally the American brand must be considerably less formal. The autocratic school superintendent, and his still more autocratic University President, have to outside observers always seemed anomalies in the sturdy democracy of America, and the proposed change is likely to come about sooner or later. In the April number of the *Review* there is an interesting comment made on the two types of leadership of educational thought and policy in America. Mr. David Snedden, Commissioner of Education of Massachusetts, is the most prominent leader of that sentiment which stands for the extreme in educational innovations. He advocates a separate system of administration for vocational and industrial education, but is not receiving much support. The other type of leader is represented by Prof. W. C. Bagley, of Illinois, who, while admitting the imperative necessity for vocational education, insists that it ought to be instituted as an integral part of the present system, and that the vocational can be articulated with the cultural under the present administrative agencies. Further, he vigorously protests against any attempt to belittle the place of liberal studies. Prof. Bagley has much the larger following.

Women Workers in Seven Professions. A Survey of their Economic Conditions and Prospects. Edited, for the Studies Committee of the Fabian Women's Group, by Edith J. Morley. (6s. net. Routledge.)

Under our modern conditions the question of how to earn a living is a serious and important problem to every individual not endowed with a substantial fortune. How to do it and how best to prepare for it should therefore be the subject of careful and well informed discussion on the part of parents and guardians as well as of the boys and girls concerned. So many luxuries have to be procured nowadays in addition to the necessities of life for an ever-increasing population that the struggle to live becomes keener year by year, and unless each individual has something to offer for which he can find a suitable market, there is every likelihood that his or her existence will remain permanently cramped and uncomfortable. It is perhaps a rather more recent development for girls to feel this economic pressure as acutely as boys, but personal observation of what goes on around them must make even favoured young women realize that a time may come in the future, even if it does not exist at present, when they will have to stand on their own feet, without the support of parents or husband. So important has this question of the choice of a livelihood appeared that a whole organization of committees and officials has been created to supply the necessary information to those boys and girls who have to choose which *trade* to enter. But the collection and dissemination of facts relating to the *professions* has been left to private enterprise. Yet this is neither less important nor less difficult to procure, especially in view of the fact that a much longer period elapses between the time when the boy or girl starts the training and the time when he or she hopes to begin earning a living. A far greater capital of years and money has been sunk and it is also harder to foresee what sort of product will be required at the end of the time.

The more one can know about the prospects before embarking on a training, the better. Indeed, in the case of women, the absence of such knowledge has proved so disastrous that special bureaux have been founded by women's societies in several large centres in order accurately to supply that necessary information, while handbooks and a fortnightly paper have been issued in order to spread this knowledge still further. The book under review is another contribution to the same subject and differs from the handbooks issued by the Central Bureau for the Employment of Women, in that each profession or branch of the profession is described by a member of it, who has therefore a particularly intimate knowledge of its more personal sides and of what demands it makes upon the character of its followers. At the same time much trouble has been taken to collect accurate and up-to-date information as to cost and length of training, commencing salaries, prospects, &c. One reviewer is hardly able to test the accuracy of all the statements made over so wide a field, and the fact that there are a large number of contributors makes deductions from one part of the book to another impossible. But where personal experience has enabled stringent tests to be applied, the strictest accuracy in all particulars has been found, and, as this has proved to be the case in several sections in different parts of the book, there is every reason to suppose that the information may be used with confidence by any one choosing or advising others as to the professions described. These professions are Teaching, the Medical, the Nursing profession, Health Visiting and Sanitary Inspectorships, the Civil Service, Clerks and Secretaries, and Acting.

To the long and varied teaching section has been appended a useful list of scholarships in all British Universities, prepared by the Central Bureau for the Employment of Women for the Students' Careers Association, and a short further list of Post-Graduate Research Scholarships compiled by the Federation of University Women. Both bodies deserve great credit for having for the first time collected this information for intending students, but it seems rather a pity to take up one-sixth of a book which has permanent value with a list which one can only hope will soon be out of date. A reference to the Societies concerned would have sufficed and secured to those readers who really desired it the means of obtaining reliable and up-to-date information at any time.

While recognizing that the FabianWomen's Group, together with the editor and authors, have rendered a valuable public service in the compilation of this volume, a word of criticism must be added. It is not to be expected that a propagandist body should content itself with a recital of facts and refrain from using them to prove the theories which it exists to spread. So here. One of these theories, at any rate, deserves further comment. We refer to that battle-cry now heard on every side—namely, "equal pay for equal work." As the book might almost seem to have been compiled in order to expound this principle, it will not be amiss to draw attention to the other sides of the question, some of which are described in the book itself, apparently without any appreciation of their true significance. In the first place men and women differ so enormously that any real and just comparison between their work is impossible. These differences are not only physical, but also mental and moral; reaching as they do to the very foundations of our being, they are bound to influence every action, and to make a very decisive because cumulative effect on that succession of actions of which our work consists. If then the work is not equal, it cannot afford a basis on which to calculate they pay.

In the second place, which of us in this competitive world thinks that our pay is proportionate to our work? Wages are settled by a large number of factors of which the nature of the work performed is only one, and not one of the most decisive. It is therefore idle to argue as if the remuneration depended entirely upon the effort expended.

Again, it is instructive to observe what happens when the same pay is offered to men and women for similar posts. Our present conditions cannot fail invariably to produce the same result—namely, that for the same pay, given similar circumstances, you will not get the same work. The same salary will attract far better women than men, and the quality of the work will be quite different. Again, there is never equality of opportunity for getting on, and in a hundred other ways, too, the effect of the equal pay is counterbalanced. Our authors do not fail to tell us of these things, but they do not appear to realize their significance.

In view of these and similar facts an impartial observer cannot help feeling that this watchword, however well meant, is not adapted to the world as it is at present, if indeed it will ever become so. The prominence given to it is apt to obscure the more fundamental problems of working women, which are indeed of burning importance, but which are too complicated to be thus easily solved. Victory in this one matter at the present time could not fail to be apparent rather than real, and would bring bitter disappointment to those who see in it the panacea of all women's ills.

Sophocles in English Verse. Vol. II: *Aias, Electra, Trachinian Maids, Philoctetes.* By Arthur S. Way, D.Lit. (3s. 6d. net. Macmillan.)

Sophocles is perhaps the most difficult of the Greek tragedians to translate. Aristophanes, though he is merciless in his parody of the thought and language of Euripides, and gives many a keen thrust at Aeschylus, never parodies Sophocles. The explanation is, doubtless, that to parody him was as difficult as it is to translate him, and for the same reasons. Sophocles is devoid of mannerisms, and although his language is subtle, the effect he produces on the mind is one of magnificent simplicity, of finished and perfect art. To translate him finally is, therefore, a wellnigh impossible task, and would need a poet of the very highest order. In the volume before us Dr. Way has achieved a remarkable measure of success, and has added one more to the excellent versions of the classics which we owe to him. The volume shows throughout what is so often lacking in the versions of scholars—the very highest poetic taste. His rendering is always skilful, and often rises to real poetry, as in the following lines:—

Noble was he, I trow, as any other
That of the princeliest house on earth was born:
Lonely, afar from any human brother,
Lieth he now, of all earth's boons forlorn;
Hath for companions but the forest haunting
Dappled or shaggy creatures; must endure
Torments of pain and famine spirit daunting,
Anguish of bitter memories passing cure!
Echo, the mountain maid, with sudden hailing
Cry, as from shadowy presence one might see
Haply afar, makes answer to the wailing—
She, and none other—of his misery.

The Swinburnian rhythms used for the choruses are most effective, and Dr. Way makes good use of compound words such as "wind-torn," "crag-eyries," "breaker-girdled." Occasionally the use of such compounds makes the language seem more ornate than that of the original, and gives an effect of overloading: but that arises rather from the difference between the two languages than from any fault of the translator. The text followed is that of Jebb, as may be seen from Philoctetes, line 1148, where—

Leap ye no longer to flee
From your lairs on the hillside

translates Jebb's excellent restoration of the text:—

μηκέτ' ἀπ' αὐλίων φυγᾷ
πηδᾶτ'.

One may compare also lines 1092 *seqq.* of the same play.

Dr. Way's translation is, we think, the best rendering of Sophocles in English. One of its chief merits is its sustained quality. We have not noted a single lapse into bathos, the besetting sin of translators, in these four plays. To illustrate the leading characteristics of Dr. Way's work in comparison with earlier translations, the richness and easy movement of his verse, and the high level which he maintains, we quote below a short lyric passage taken at random from the "Ajax,"

together with the same passage from one of the best of the earlier versions:—

Death's might be thou bright round about me!
O nethergloom, sunbright to me,
Receive me, receive!—be I made
An abider at rest in your shade!
Receive me who look not for aid
From Gods—even mortals shall slight me,
Though but things of a day they be!
For the mighty Goddess, the Daughter
Of Zeus, with the hate of death
Smites me with flails of despair.
Whitherward shall I turn and where
Shall I find me a haven of rest?
My glory is writ upon water:
It hath fled with the parting breath
Of the victims I slew: on a quest
After triumphs of madness I pressed;
And the whole host armed for the slaughter
For my heart's blood clamoureth.

O darkness, now my light,
O gloom to me most bright,
Take me, yea take me for your habitant:
Take me! for I can brook
No longer now to look
Either on God or mortal, in my want.
Nay rather upon me
The strong divinity,
Daughter of Jove, destructive torment sends;
Then what escape is best?
Where should I turn for rest,
Now that my former fame is fading, friends,
And retribution follows instantly,
And here I sit with my ridiculous prey,
And the whole host will aim a dart at me,
Once and again to slay?

The general superiority of Dr. Way's version in its easier movement and more skilful use of rhyme is, we think, apparent, particularly in the last stanza. In the opening lines the second version, with its simplicity and directness, is perhaps nearer the original.

Squaring the Circle. By E. W. Hobson, Sc.D., LL.D., F.R.S. (3s. net. Cambridge University Press.)

We heartily commend to the attention of all who are interested in the History of Mathematics the volume recently issued under the title "Squaring the Circle," by the Cambridge University Press. In it Dr. Hobson, Sadleirian Professor of Pure Mathematics at Cambridge, has given to the general reader the opportunity of becoming acquainted with the material which formed the subject of a course of lectures delivered by him in the University during the spring of last year. We need not remind any one that the famous problem with whose life history the author deals has occupied the thoughts of successive generations of men, both mathematicians and non-mathematicians alike, from very ancient times. Chapters of the story have been given by numerous writers on mathematics, and Dr. Hobson disclaims entirely any attempt to pose as discoverer of the historical facts which he sets forth. He has been content to collect and arrange material already amassed by previous workers in the field. The important and valuable service rendered by the present volume is that it contains woven into a connected and most interesting whole the available threads of information, and that in its pages the author discusses very lucidly (1) the exact nature of the problem; (2) some of the reasons why its investigation has involved so much expenditure of misdirected zeal and energy on the part of the amateur; (3) what are the contributions to the subject that we owe to many of our greatest mathematicians; (4) what has been the influence of the advance of mathematical science on the study of the problem; (5) the steps which have culminated in the establishing beyond question the impossibility of solving the problem under the conditions originally laid down.

Touching in the course of his first chapter on the way in which the problem was wont to be enunciated, Dr. Hobson is led to define very clearly the distinction between geometry as a physical or practical science and geometry as an abstract or rational science. This is a point which he has treated before in another place, namely, in his presidential address to the Mathematical Association in the January of last year (see the *Mathematical Gazette* for March, 1913). It is the failure to recognize the essential difference between the two branches of the science of geometry which has, the author tells us, proved one of the chief stumbling-blocks throughout the ages. Practical geometry in the hands of the research student is (and must always continue to be) liable to subjective and objective errors, but, given "the infinite capacity for taking pains" on the part of the worker, and a high degree of accuracy in the instruments at his disposal, the errors may be reduced to a negligible quantity for all practical needs. Far different is the case of abstract geometry. Here an approximation, however close, is valueless as a solution, and, unless ideal results follow from the use of ideal means, only failure can actually be recorded.

Referring to the fitting distribution of his subject, Dr. Hobson shows that the history of the problems of the quadrature and the rectification of the circle naturally divides itself into that of three periods. The first carries us back into the remote past and brings us down to the middle of the seventeenth century. It is characterized by the geometrical nature of the attempts made to discover the *exact* and constant ratio of the area of a circle to the square on its radius, of the circumference of a circle to its diameter, the ratio being known to be the same in each case. During the period, the abstract and ideal nature of the problem as enunciated was always more or less present to the would-be solver. It is, as the author remarks, a matter for wonder to contemplate the degree of accuracy reached in spite of the cumbrous notation connected with the arithmetic of a very large proportion of the time concerned.

The second period commenced with the birth of the Differential and Integral Calculus, and terminated about a century later. The rise of analytical methods meant an enormous increase of power in calculation, and led moreover to the discovery of analytical expressions representing π in series, and also in product and in fractional form. During this period men devoted a vast amount of labour and skill to the numerical calculation of π to a very close approximation. Its close, however, left mathematicians still unaware of the character of the quantity whose value they sought, whilst the knowledge they possessed was not conducive to any advance towards the discovery of the impossibility of solving ideally the old problem. To this period, however, must be assigned the noting of the relation that exists between the quantities e and π. The succeeding century belongs to the third period of our history. It saw the determination of π first as irrational and afterwards as transcendental. It saw further the discovery that a Euclidean construction fails entirely to determine such a number. Hence the *ideal* solution of the old problem has been finally proved—and that for all time—to be impossible by a Euclidean construction. To the subsequent chapters of Dr. Hobson's "Squaring the Circle" we turn for the details which reveal more fully the history of this celebrated problem, and we invite our readers to do likewise. We have but briefly outlined the general scope of the theme.

"Heroes of the Nations."—*Cavour, and the Making of Modern Italy* (1810-1861). By Pietro Orsi, of the University of Padua, Deputy in the Italian Parliament. (5s. net. Putnam.)

There is generally arbitrariness, if not injustice, in singling out one man as the hero of a great movement; but if one man must be singled out as the maker of Modern Italy, that man must certainly be Cavour. Next to Cavour must be placed Mazzini, whose lofty and strenuous idealism "raised up those souls, full of calm heroic faith, that were afterwards the most effective fellow-workers with Cavour in the national revival," thus "creating the conditions necessary for the fulfilment of Cavour's positive policy," yet more than once led to futile and disastrous practical issues. With these two pre-eminent figures must be joined the heroic and more picturesque Garibaldi, and the jovial and resolute Victor Emmanuel II. It seems very strange that Cavour and Mazzini never met; and unfortunate as strange. For, different as the men were in temperament and in training, "how many mutual prepossessions would have been dissipated, how

many false judgments avoided, by personal contact and the frank exchange of ideas!" The moral teaches the need for a cool practical judgment to control the forces of enthusiasm into effective channels. Before Cavour was born, the French Revolution had wakened Italy from its political lethargy; and, when Cavour was but a boy, Napoleon had already foretold the rise of a great nation with its capital in Rome. Cavour was born and bred in the atmosphere of absolutism, but at the age of twenty-one (1831) he had abandoned the military career and entered on serious preparations to realize his youthful dream of becoming First Minister of the Kingdom of Italy. But he had to wait long for his opportunity: the ignorance and unintelligence of the powers that were had no use for his abilities and acquirements, and naturally resented his independent bearing. So he studied and travelled, managed a big estate of his father's, organized industrial societies, engaged in railway enterprises, founded the first political newspaper in Piedmont (*Il Risorgimento*), and gained a large and varied experience of affairs. He was just turned forty when he became a Minister, and two years later he became Prime Minister (1852). The years of power were crammed with indefatigable labours for internal Piedmontese reorganization and development, for consolidation of Italian feeling and action, and for the expulsion of the foreigner. During the war of 1859, Cavour was at the same time President of the Council, Foreign Minister, Minister of Home Affairs, and Minister of War and Marine. "It is difficult for anybody who did not stand by his side in the months of April, May, and June, 1859, to form an adequate conception of his power for work. He had a bed set up at the War Office, and at night, wrapped in his dressing-gown, he hurried from one Ministry to another [all the Ministries were in the Palazzo delle Segretarie] to give orders relating now to artillery, now to diplomatic correspondence, now to police." The Kingdom of Italy was formally proclaimed on March 17, 1861, twelve years after the dark day of Novara; and in less than three months Cavour was dead (June 6). The narrative is plain and clear, and the criticism of men and events is fair and reasonable. The story is all the more attractive for the sympathetic attitude of our own country to Italy. There is a very liberal provision of illustrations, including a number of good portraits and some interesting historical documents.

The Foundations of International Polity. By Norman Angell. (3s. 6d. net. Heinemann.)

The six chapters of this book substantially reproduce as many addresses delivered to various audiences in this country and in German Universities; and the argument that runs through them is summarized conveniently in an introductory paper of considerable length. The object of the book is to show, step by step, that the existing theory of international politics ignores the facts or is based on a demonstrable misreading of them. "Save only in a narrow juridical sense, which, as will be indicated, does not affect the vital functions of society," says Mr. Angell, "the nations which form the European community are not sovereign, nor independent, nor entities, nor rival, nor advantageously predatory; nor does the exercise or possession of the means of physical coercion determine the relative advantage of each; nor is physical coercion within their borders the ultimate sanction of social organization, of law and justice." "The need for widespread co-operation to find our sustenance and the decline in the effectiveness of physical force as a means of securing services in a co-operative process of any complexity"—these two factors "have destroyed, not merely the economic, but the moral and intellectual, unity and homogeneity of States, and they have rendered the exercise of force by one State against another, for economic, moral, or intellectual purposes, futile, because ineffective and irrelevant to the end in view."

We are all pretty well agreed, or at any rate we ought to be, about the ramifications of business and the universality of ideas. But, supposing that one country is entirely persuaded of all this (as probably we may say Great Britain is), what is this country to do so long as other countries retain their belief in the virtues of force? If it remains absolutely pacifist, and a neighbour country takes possession of it, no doubt, as Mr. Angell says, the aggressor could not control the things of the mind, the moral and intellectual possessions, of the subjected people—in a sense; but what of its patriotism, its self-respect, and all the moral effects dependent on that? If patriotism were transformed into cosmopolitanism or universalism, well and good; but till then? Even Mr. Angell, however, would not allow such a situation to develop: "I am a Pacifist," he explains, "in the sense that I believe men will best carry on their fight against Nature [we should rather say their endeavour to understand Nature and to range her on their side] by ceasing bootlessly to fight against each other"—and we are all with him there; "but," he goes on, "I beg you to note this, that, because I do not believe in force, I do believe in defence—that is to say, I do not believe in allowing the other man's force to settle any matter in dispute"—any more than, for example, Mr. Churchill! Still, the minds of men have been gradually opened to abolish force in many departments of life, notably to eliminate religious war; and Mr. Angell's propaganda is all to the good by way of general enlightenment towards the abolition of the aggressor. Meantime it seems vain to argue that the aggressor is not to be met with the only weapons that he understands and appreciates. We strongly recommend Mr. Angell's book to all prospective aggressors and unlimited believers in the efficiency of physical force.

The Mind at Work. Edited by Geoffrey Rhodes. (3s. 6d. net. Murby.)

This is a somewhat unusual little book. Its sub-title reads "A Handbook of Applied Psychology," but the text does not make it quite clear to what special matters psychology is to be applied. It is evidently not meant solely for teachers, which may be somewhat of a recommendation to those of us who are a trifle tired of our specially prepared doses of this subject. In the next place, of the fourteen chapters only two are written by the editor himself. The first two, on the Anatomy and Physiology of the brain and nervous system, are contributed by C. Buttar, M.D.; the next nine on what may be called general psychology by E. J. Foley; the editor supplies the next two chapters that include a treatment of the will and the general unity of the consciousness; while Prof. Bernard, of Florida University, concludes with a chapter on the Applications of Psychology to Social Problems. Dr. Buttar does well the small part of the work allocated to him. Mr. Foley is specially anxious that he should not be supposed to claim any originality for his work beyond arrangement and expression, but as a matter of fact he contrives to give to his contribution an air of freshness that is not quite usual. The titles of his chapters are a little out of the rut, though, naturally, he has to cover all the usual ground. His treatment includes all the aspects of his subject, even the little references to epistemology and metaphysics that are necessary to indicate the true relations between Psychology and her sister subjects. The reference to Locke at the foot of page 82 is as necessary as it is unusual. Mr. Foley is normally so accurate that the word "greater" in the last line of page 62 must be regarded as a mere slip, in view of what he says at the top of page 129.

The editor's own contribution brings the book into touch with the more recent developments of the "unconscious" school. Freud is mentioned by name, and there is enough said on the subject to give the reader a general idea of the direction in which the school is moving. Prof. Bernard's chapter is remarkably clear, and gives in comparatively small bulk quite a satisfactory statement of the rise and progress of social psychology. Like so many American writers on this subject, he does not realize the priority of the English contribution as found in Walter Bagehot's "Physics and Politics." The last three chapters of "The Mind at Work" mark a new departure in the textbook treatment of psycho-

logy. The book has no index, and the list of psychological terms does not make up for the omission.

Ambidexterity and Mental Culture. By H. Macnaughten Jones. (2s. 6d. net. Heinemann.)

There are some departments of human knowledge of which it is difficult to say whether they belong to the province of the doctor or the schoolmaster. Stammering, the habit of romancing, or of keeping the teeth clean, the discovery of genius, and the repression of vice, are claimed now by one, now by the other, of the *two* great teaching professions. Dr. Macnaughten Jones has written a book which brings together a great deal of information with regard to left-handedness and ambidexterity. He considers that, as each hand has its own brain centre, the right receiving its influences from the left cerebral hemisphere, and the left from the right, that the often exclusive use of the right hand in many of the occupations of modern civilization leads to a similarly exclusive use of the left side of the brain, with a consequent want of development of the potentially equal right half.

Modern education cannot but be interested in this question, especially if the claim he makes is a fair one: "I anticipate a time when it will no longer be rare to find the two-handed men or women workers," he says, "equally proficient in execution with both hands. When this advance has been made, *there will be a corresponding gain to the mental side of life.*" Let us hope that schoolmistresses may be able to bring to our notice some evidence that the development of ambidexterity leads to a better balanced brain. At present the medical evidence is not very strong. We know that a small percentage of children are naturally left-handed, and that the attempt to educate them in the ordinary way is pain and grief to them—the suggestion is that a similar number are naturally right-handed, and that the vast majority can be taught to use either or both hands with average capacity.

Dr. Macnaughten Jones collects many facts to support his view, but the real issue is this: Is it possible to educate both hands, and consequently both sides of the brain, to the condition of efficiency now attained by most people only with the right hand and the left side of the brain? The answer to this must in the long run be answered by the educationists, since there is at present no criterion for estimating from the microscopical appearance of any brain centre what are the possibilities of its development or the limitations of its activities.

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(1) *The Groundwork of Arithmetic.* By Margaret Punnett, B.A. (3s. 6d. Longmans.) (2) *Exercises in "The Groundwork of Arithmetic."* Books I, II, and III. By Margaret Punnett, B.A. (Book I, 4d.; Books II and III, 6d. each. Longmans.)

The writer and compiler of the above-named volumes is known to many as the Vice-Principal of the London Day Training College (University of London). Hence it is not surprising that she should be well fitted to contribute to the library of pedagogical treatises. "The Groundwork of Arithmetic" is both interesting and suggestive, and will well repay a careful study of its pages whether the reader is a student in training or a teacher actually engaged in the tuition of little children. The course of instruction outlined is designed for use with pupils who range from six to ten or eleven years of age, and who have at the outset no knowledge of numbers save the preliminary conceptions derived from games and daily experience. These under wise guidance may be many and valuable, but should never be acquired as the result of conscious effort. Perhaps the little volume tells for the most part what has already been taught by other writers on the subject, for it cannot now be said that there is a dearth of interest in intelligent teaching or the same lack of good books as existed formerly. Nevertheless, there is always room for an additional textbook when it combines, as in the present case, excellence of treatment, clearness of exposition, and an interesting style. The work is divided into five "Sections," each of which may be roughly taken to answer to a year of the pupil's work. Oral exercises alone are needed as an accompaniment to the first two "Sections," whilst the Books I, II, and III of the "Exercises" correspond respectively to "Sections" III, IV, and V of the teacher's manual. Good diagrams add to the usefulness of the teacher's handbook. The few illustrations scattered through the volumes of the "Exercises" are less satisfactory.

The Medical Inspection of Girls in Secondary Schools. By Catherine Chisholm, B.A., M.D. (3s. 6d. Longmans.)

The other day the mayor of an important city in the United States said he would rather cut off his hand than sign a document favouring the medical inspection of pupils in the schools. We are not so bad as that in England, but no one can read such a book as this without noticing how extremely careful the author is to avoid anything in the way of rousing the antagonism of either parents or teachers. Dr. Chisholm is known to be exceedingly tactful in real life, and she certainly exemplifies and inculcates tact in a most effective way in these pages. The book is intended for different groups of people. School medical officers, teachers, and that increasing group of non-professional people who give up their time to the social side of educational work, will all find something to their advantage in Dr. Chisholm's book. They will not all find the same things. Much of the medical part may be over simple for the medical people, though quite new to many of the teachers; while the parts bearing specially on school work may be a little boring to experienced teachers, but of great value to the doctors. Much of the book, however, will be of value to all who read it. This particular application of facts is not yet so common as to have become stale. A book of exactly this kind was needed, and Dr. Chisholm is just the person who should have written it. A book that has won a sponsor like Miss Burstall can be recommended with the utmost confidence.

GENERAL NOTICES.

CLASSICS.

The Shorter Aeneid. Selected and arranged by H. H. Hardy. With a Preface and Introduction by H. E. Butler, M.A. (2s. 6d. G. Bell.)

Prof. Butler opens an admirable preface with the words, "An abbreviated 'Aeneid' will seem to many an audacity and to some a profanation." Nevertheless, he makes out a very good case for the book, which is not meant for scholars, but for "those for whom Latin may have real value and a genuine message, but for whom it must always remain but a subsidiary element in their education." The aim is to enable such students to appreciate, as far as possible, the significance of the poem as a whole. Accordingly those passages are omitted which present difficulties, either of text or interpretation, or which are irrelevant to the main theme. The poem is thus reduced to about half its original length. The exact passages to be excised must be largely a matter of individual taste, but Prof. Butler's name is a guarantee that the plan of the book has been carried out with as little sacrifice as possible of the beauties of the poem. There is an excellent introduction by the same scholar, in which the importance of the "Aeneid" as a national epic and the greatness of its conception are well brought out. The book contains brief notes, and those who are unable to study the whole poem would do well to read it in this abbreviated edition.

"College Series of Greek Authors."—*Thucydides, Book VI.* By Charles Forster Smith. (6s. 6d. Ginn.)

This edition, as the editor tells us in his preface, is based upon Steup's version of Classen's edition, Berlin, 1905. The editor's judgment, however, is thoroughly independent, and his text is considerably more conservative than that of Steup. While accepting almost all changes which may fairly be regarded as certain, he returns to the MS. reading in a number of passages. In such cases, and indeed wherever the text has been called into question with any probability, he gives us in an appendix a full discussion of proposed changes and of difficulties of interpretation. The explanatory notes are very clear, and exhibit a minute and detailed knowledge of Thucydidean style and language. An unfortunate misprint (ἡμᾶς for ὑμᾶς) at Chapter XL, line 13 (page 84, line 3) mars the sense of the passage. Three maps enhance the usefulness of the book. The only remark we noticed to which exception might be taken was in a note on οὐ, Chapter XXXIII, line 5 (page 66, line 4), which is said to negative both participle and verb in the phrase "οὐ καταφοβηθεὶς ἐπισχήσω." Only the verb is negatived, the words meaning "I will

(*Continued on page* 300.)

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not refrain from speaking through fear." We congratulate the author on a most able piece of editing, and recommend the book to all advanced students of Thucydides.

The Year's Work in Classical Studies. 1913. Edited by Cyril Bailey, M.A. (2s. 6d. net. Murray.)

With the present issue this excellent annual summary of work in the classical field reaches its eighth year. Containing as it does articles by specialists on the latest work in all the many branches of classical research, it is indispensable to the classical student. This year the chapter on philology is omitted, and its place taken by that on grammar, lexicography, and metric, which last appeared in 1911. Other chapters covering the work of two years are those on New Testament, Hellenistic Greek, and Modern Greek. Otherwise the volume contains all the usual well known features.

A Shorter Second Latin Course. By E. H. Scott, B.A., and Frank Jones, B.A. (2s. Blackie.)

In this edition of the Second Latin Course the authors have cut out the passage from Caesar's "Gallic War," Book I, on which the earlier part of the book is based, and which was formerly given in full at the end of the book. The exercises are also considerably shortened. The book will be more useful to many in its abbreviated form.

Synthetic Latin Vocabularies. By the Rev. Hedley V. Taylor, B.A. Oxon, M.A. (1s. Blackie.)

These vocabularies contain a large number of Latin words arranged under headings such as "Time and Space," "Government and Administration," "Law and Justice," &c. Many of the headings are furnished with useful notes on Roman practice and custom in the department to which the words given relate.

EDUCATION.

Co-Education in Practice. By J. H. Badley. (1s. net. Heffer.)

This is an expansion of an address delivered to "The Heretics" at Cambridge by the Head Master of Bedales School. The arguments for Co-education are based largely on the author's experience, and are presented in a very persuasive way. The pamphlet is singularly free from dogmatism, and is characterized by a laudable desire to get at the truth on a highly controversial subject. To maintain the literary amenities without lowering the scientific character of the argument the author adds three appendixes containing statistical facts bearing upon the subject.

The Health and Physique of School Children. By Arthur Greenwood. (1s. net. King.)

This book represents the results of a serious attempt to get reliable statistics on the physical development of the school children of this country. The advance it has made on the best previous work in respect of the number of children represented may be gathered from the fact that the British Association inquiry (1875–1883) dealt with 42,000 individuals, while Mr. Greenwood's tables include 80,000. The report is valuable mainly for the figures it supplies. Mr. Greenwood certainly draws some conclusions, but he is fully aware how tentative these must be at this stage. His great achievement, and it is a great one, is to present such material as enables us to begin the study in a scientific way. To begin with, his results suggest certain questions, and indicate promising ways of answering them. Mr. Greenwood has deserved well of all who are interested in the welfare of the young by this bit of solid work, and the Ratan Tata Foundation is doing excellent work in making such publications possible.

The Teaching of Reading by the Phonic Method. By John Mason. (2s. Oliver & Boyd.)

This book is divided into two parts, the first dealing with the teaching of reading, the second with a commentary on the progressive primers and readers. The first part aims rather at suggesting than dictating a method, but probably the best value will be obtained from the book by those using the primers and readers referred to.

Notes on the Teaching of English. Part I. By W. J. Batchelder. (1s. 6d. Macmillan.)

This is one of those aids that are now being offered to teachers in the actual discharge of their functions. The author has worked up into a textbook the principles laid down in the chapter on the teaching of English to be found in the Board of Education's "Suggestions to Teachers." This is ingenious, and has won the approbation of Mr. J. W. Jarvis, the experienced Normal Master at St. Mark's Training College, who supplies a preface. The book is eminently practical, and will without doubt prove serviceable to young teachers. If there were such beings as teachers inclined to be lazy they should not be tempted with this book. Of course if they are merely overworked they may use it without sin and with some satisfaction.

The Unfolding of Personality as the Chief Aim in Education. By Thiselton Mark. (1s. net. Fisher Unwin.)

We welcome this cheap edition of a work that in its original form was favourably reviewed in these columns. It is encouraging that solid books of this kind are in so great demand as to warrant such a reissue. We congratulate Dr. Mark on the success of his writing and the publisher on the handsome way in which he has brought out this cheap edition.

MATHEMATICS.

Junior Geometry. By A. G. Cracknell, M.A., B.Sc., F.C.P. (University Tutorial Press.)

A small textbook prepared with special reference to the requirements of candidates for the Cambridge Junior or Preliminary Local Examinations. The work is more elementary than, but is nevertheless based on, the "Geometry, Theoretical and Practical" which is due to the same author in conjunction with Mr. W. P. Workman, M.A., B.Sc. The newly proposed Junior Form Course is generally satisfactory in plan and treatment, and useful in scope. The wording is sometimes not quite precise, and to our thinking the solution of problems should never be taught without some explanation of the why and wherefore of the method. Mere construction is evidently suggested in the earlier part of the volume, for otherwise why should the constructions be duplicated later, with the addition of the necessary demonstrations?

An Algebra for Preparatory Schools. By Trevor Dennis, M.A., Mathematical Master at Sherborne School. (2s. Cambridge University Press.)

This little book follows the syllabus issued by the Curriculum Committee of the Head Masters' Conference. The subject is developed by the use of examples, and constant revision practice is afforded. It is suggested that as much of the work as possible should be oral, and masters' copies of the book are arranged with answers interleaved with the text. In the Graphical section we are glad to see the caution given to draw the lines with an H pencil sharpened to a chisel point. A 3H pencil would not have been too hard. The practical examples in the last section are a useful feature.

"Columbia University Lectures."—*Graphical Methods.* By Carl Runge, Ph.D., Professor of Applied Mathematics in the University of Göttingen. (6s. 6d. net. Humphrey Milford.)

Graphical methods of investigation possess many distinct advantages which lead the engineer, the physicist, and others whose work follows lines of an essentially practical character to adopt them freely, on account of the comparative ease with which a positive demonstration, coupled with a direct and reasonably accurate solution, can be obtained for many types of mathematical problems which are insusceptible to easy treatment by analytical processes. The value of these lectures lies in the fact that they outline the development and investigation of graphical methods from the purely mathematical point of view. The work includes graphic arithmetic, the graphic handling of integral functions and complex numbers, with a brief note on the application of the latter to vibration problems. Graphical representation of functions which involve two, three, or four variables, the representation of a space surface by a plane drawing, graphical integration, differentiation, and the solution of differential equations, are also dealt with. The information given is sufficient to facilitate the application of graphical methods to almost any problem which is susceptible to this form of mathematical treatment. Practical applications have been pointed out in places, but the specialized application is left for the reader to consider with respect to his own particular branch of work. The lectures are well worth reading and studying by all who are interested in this important side line of mathematical investigation.

"Cambridge Mathematical Tracts."—No. 14: *The Twisted Cubic.* By P. W. Wood, M.A., Fellow of Emmanuel College, Cambridge. (2s. 6d. net. Cambridge University Press.)

This tract divides itself into two distinct sections, the first dealing with the projective properties of the twisted cubic, and the second with the special properties of the cubical hyperbola. A connected analytical treatment brings out all the interesting metrical properties associated with this curve, and the tract efficiently fills what has been a gap in the literature of the subject.

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(*Continued on page* 302.)

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ENGLISH.

A Handbook of Précis Writing. By E. Derry Evans, M.A. (2s. Cambridge Uuiversity Press.)

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Selections from Hazlitt. Edited by Prof. Will David Howe. (5s. Ginn.)

This volume aims at giving essays of Hazlitt "which distinguish him as a critic of painting, of the drama, of books, and of life." The introduction gives a critical account of the author's work under these different aspects, and includes also an interesting biographical sketch and a bibliography. The notes supply explanations of the allusions and references in the text as well as brief introductory remarks on each essay. The book should form an interesting means of making acquaintance with Hazlitt's works.

Shorter Modern Dictionary. (1s. Macmillan.)

This is an abridged and modified form of the "Modern Dictionary," intended for the use of young pupils. It includes not only words whose spelling, pronunciation, or meaning might present difficulty to school boys and girls, but also explanations of common phrases, such as "the yellow peril," and of initials, *e.g.* B.D. and G.N.R. All important derivations are given, and the pronunciation is very satisfactorily indicated wherever the mere separation of a word into syllables is insufficient for this purpose. The book will be welcomed by all teachers seeking for their pupils a clear, concise, and sufficiently comprehensive dictionary.

English Lessons on the Gouin Method. By F. Thémoin, late Principal of the Gouin Schools, London, and M. F. Yates. (1s. 6d. Hachette.)

This is a first book for children, illustrated, and is intended to be followed by the same author's "Gouin Method for Adults." The various "lessons" are interesting and well graduated, and the necessary grammar is simply and briefly expressed.

A Manual of English for Foreign Students. By E. C. Marshall and E. Schaap. (3s. 6d. Hachette.)

This book is intended for the use of foreigners resident in this country who "are engaged in commercial pursuits, and are anxious to get a working knowledge of the language as quickly as possible." It is divided into three parts, the first treating of the essentials of English phonetics, the second of grammar, and the third of composition. There is a careful description and analysis of English pronunciation and its relation to our difficult and irregular spelling. The grammar is thorough and systematic, and such difficult points as the use of "shall" and "will" and of the subjunctive mood—to take only two or three examples—are well and clearly explained. The section dealing with composition includes material for practice in distinguishing between words of similar and allied meanings, explanations of common errors, lists of idioms, forms of letter-writing, and other matters. The book should prove of real and practical value to the class of pupils for whom it is intended.

Selected English Speeches from Burke to Gladstone. Edited by Edgar R. Jones, M.P. (1s. net. Oxford University Press.)

The fact that this little volume is one of "The World's Classics" makes it unnecessary to say much in praise of it. It contains a valuable collection of eighteen speeches, all by well known speakers, most of them by famous ones, and all distinguished both by the interest of their subject-matter and by their merit as examples of "the highest attainment in oral expression."

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(*Continued on page* 304.)

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Cours français du Lycée Perse. Première Partie. By L. C. von Glehn, L. Chouville, and Rose Wells. (2s. Heffer.)

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Petit recueil de Chants français. Edited by H. Carter. Tonic Sol-fa Notation by W. L. Brooksbank. (2s.; large edition, 4s. 6d. net. Oxford University Press.)

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This volume contains 32 pages of introduction, 95 of text, 31 of notes, and 30 of lists, retranslation exercises, and proses. Kleist's masterpiece is here well provided with reasonable introduction and notes. The lists and retranslation exercises are of the usual Siepmann character. The connected pieces of prose dealing with the historical background and literary questions raised by the play are useful.

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BOTANY.

Textbook of Botany. Indian Edition. By Lowson and Willis. (6s. 6d. University Tutorial Press.)

To those who believe in teaching botany by words and "illustrating" by means of experiments and specimens, Lowson's "Textbook of Botany" will afford great help. This new edition of it, prepared specially for Indian students by Mrs. Willis, appears to be fully as useful as the English one, and the name of Dr. J. C. Willis, who supplies the preface, is a sufficient guarantee that the Indian examples are well chosen. On the other hand, the use of a book of this character does not appear to be likely to inhibit the exercise of the "extraordinary capacity which Oriental students show for committing to memory . . . bookwork," to which Dr. Willis refers in the preface, and which by implication he deplores, at any rate, in connexion with a subject like botany. English students who use Lowson have been found to be far more advanced in bookwork than in first-hand knowledge of plants. This may, of course, be a coincidence and due to the teacher rather than the textbook.

Introduction to Botany. By Bergen and Caldwell. (5s. Ginn.)

In the hands of an intelligent teacher this should prove a very useful textbook for secondary-school pupils, and would take them well up to Matriculation standard. Like so many American books, it very successfully avoids dullness, and it seems likely to appeal, as the authors hope it will, to pupils who do not intend to go on to college. Its chief drawback for English use lies in the fact that some points are illustrated by examples which have no parallel in this country. Still, the book is worth consideration when textbooks are being chosen.

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Education and Psychology. By Michael West. Longmans. 5s. net.

Jahrbuch der Koniglich Preussischen Auskunftstelle fur Schulwesen. Erster Jahrgang, 1913. Mittler (Berlin).

School and Life: a brief Record of the Life and Work of Maria Elizabeth Findlay. By various writers, with portrait and illustrations. George Philip, 2s. 6d. net.

A Path to Freedom in the School. By Norman MacMunn. Bell, 2s. net.

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The School Journey Record, 1913. Published by the School Journey Association. Price to non-members, 2s.

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(*Continued on page* 306.)

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MATHEMATICS.

Readers desiring to contribute to the Mathematical columns are asked to observe the following directions very carefully :—

(1) *To write on one side only of the paper.*

(2) *To avoid putting more than one piece of work on a single sheet of paper.*

(3) *To sign each separate piece of work.*

17549. (J. Hammond, M.A.)—Find n numbers such that the sum of their squares is a cube, and the sum of their cubes a square.

Solution by Philip F. Stephenson, B.A.

If $k = \frac{1}{6}[n(n+1)(2n+1)]$, a possible series is $k^4, 2k^4, 3k^4, \ldots, nk^4$.

$$\Sigma \text{ squares} = k^8 . k = k^9, \quad \Sigma \text{ cubes} = k^{12}\left\{\tfrac{1}{2}[n(n+1)]\right\}^2.$$

A more general solution is

$$k^{6q-2},\ 2k^{6q-2},\ 3k^{6q-2},\ \ldots,\ nk^{6q-2}.$$

Geometrical Note.

Communicated by A. S. Gosset-Tanner, M.A.

The following direct proof of the theorem : "A circle can be inscribed in the quadrilateral ABCD if AB + CD = AD + BC" is due to A. H. Teagle, a pupil at Derby School, now only fifteen years of age.

By supposition CD − BC = AD − AB. From CD cut off CX = BC, and from AD cut off AY = AB ; then DX = DY. The bisectors of the vertical angles of the isosceles triangles BCX, ABY, DXY bisect at right angles the sides of the triangle BXY, and are therefore concurrent. The point of concurrence is clearly equidistant from the four sides of ABCD.

17570. (A. M. Nesbitt, M.A.)—A pair of common tangents to two conics S, S′, touch S in A, B, and touch S′ in C, D. The line AB touches S′ and the line CD touches S. Find the invariant relation between S and S′.

Note by the Proposer.

In the last line "relation" should read "relations." The relation quoted by Mr. Bailey (see Question 17590) is true if CD touches S whether AB do or do not touch S′. The reciprocal invariant relation is thus also required : and from these two we can deduce $\Theta^3\Delta' = \Theta'^3\Delta$. Consequently, however far Mr. Bailey may be justified in regard to the remaining properties in Question 17590 being deducible from any one of them, it is certainly not true that Question 17570 can be deduced from some of them, either with or without the use of invariants.

If S be a circle with its centre on another circle S′, the tangents to S at AB—its real intersections with S′—meet on S′ ; so also do the tangents to S at IJ, its imaginary intersections with S′ ; and we have $\Theta^3 + 8\Delta^2\Delta' = 4\Delta\Theta\Theta'$. But if the centre of S′ also lie on S (*cf.* Euclid I, 1), then likewise $\Theta'^3 + 8\Delta'^2\Delta = 4\Delta'\Theta\Theta'$, and hence $\Theta^3\Delta' = \Theta'^3\Delta$.

16641. (T. Muir, LL.D.)—If $|\alpha_1\beta_2\gamma_3|$ be an orthogonant, prove that

$$(\alpha_1+\beta_1+\gamma_1)(\alpha_2+\beta_2+\gamma_2)(\alpha_3+\beta_3+\gamma_3) - 2(\alpha_1\beta_1\gamma_1+\alpha_2\beta_2\gamma_2+\alpha_3\beta_3\gamma_3)$$
$$= (\alpha_1+\alpha_2+\alpha_3)(\beta_1+\beta_2+\beta_3)(\gamma_1+\gamma_2+\gamma_3) - 2(\alpha_1\alpha_2\alpha_3+\beta_1\beta_2\beta_3+\gamma_1\gamma_2\gamma_3).$$

Solution by the Proposer.

Since $\qquad \alpha_1\alpha_2+\beta_1\beta_2+\gamma_1\gamma_2 = 0,$

we have $(\alpha_1+\beta_1+\gamma_1)(\alpha_2+\beta_2+\gamma_2) = \alpha_1\beta_2+\alpha_1\gamma_2+\beta_1\gamma_2+\beta_1\alpha_2+\gamma_1\alpha_2+\gamma_1\beta_2,$

and as the eighteen terms resulting from the multiplication of the right-hand member by $\alpha_3+\beta_3+\gamma_3$ can be arranged in the form

$$\alpha_1(\gamma_2\gamma_3+\beta_2\beta_3)+\beta_1(\alpha_2\alpha_3+\gamma_2\gamma_3)+\gamma_1(\beta_2\beta_3+\alpha_2\alpha_3)$$
$$+\alpha_2(\gamma_1\gamma_3+\beta_1\beta_3)+\beta_2(\alpha_1\alpha_3+\gamma_1\gamma_3)+\gamma_2(\beta_1\beta_3+\alpha_1\alpha_3)$$
$$+\alpha_3(\beta_1\gamma_2+\beta_2\gamma_1)+\beta_3(\gamma_1\alpha_2+\gamma_2\alpha_1)+\gamma_3(\alpha_1\beta_2+\alpha_2\beta_1),$$

which is equal to

$$\alpha_1(-\alpha_2\alpha_3)+\beta_1(-\beta_2\beta_3)+\gamma_1(-\gamma_2\gamma_3)$$
$$+\alpha_2(-\alpha_1\alpha_3)+\beta_2(-\beta_1\beta_3)+\gamma_2(-\gamma_1\gamma_3)$$
$$+|\alpha_1\beta_2\gamma_3|+2(\alpha_1\beta_3\gamma_2+\beta_2\gamma_1\alpha_3+\gamma_3\alpha_2\beta_1),$$

it follows that

$$(\alpha_1+\beta_1+\gamma_1)(\alpha_2+\beta_2+\gamma_2)(\alpha_3+\beta_3+\gamma_3)+2(\alpha_1\alpha_2\alpha_3+\beta_1\beta_2\beta_3+\gamma_1\gamma_2\gamma_3)$$
$$= |\alpha_1\beta_2\gamma_3| + 2(\alpha_1\beta_3\gamma_2+\beta_2\gamma_1\alpha_3+\gamma_3\alpha_2\beta_1).$$

Interchanging in this α_2 and β_1, α_3 and γ_1, β_3 and γ_2, we obtain

$$(\alpha_1+\alpha_2+\alpha_3)(\beta_1+\beta_2+\beta_3)(\gamma_1+\gamma_2+\gamma_3)+2(\alpha_1\beta_1\gamma_1+\alpha_2\beta_2\gamma_2+\alpha_3\beta_3\gamma_3)$$
$$= |\alpha_1\beta_2\gamma_3| + 2(\alpha_1\beta_3\gamma_2+\beta_2\gamma_1\alpha_3+\gamma_3\alpha_2\beta_1);$$

and, as the right-hand member is unaltered by the interchange, the desired result is in sight.

17684. (E. G. Hogg, M.A.)—If P be any point on the circle ABC, then the points A, B, C, P and the symmedian points of the triangles ABC, BPC, CPA, and APB lie on a conic.

Solution by the Proposer.

Let $(\alpha_0\beta_0\gamma_0)$ be co-ordinates of P. The polars with respect to the triangle BPC of any point on the circle ABC will pass through the symmedian point of the triangle BPC. Hence if $(\alpha'\beta'\gamma')$ be the co-ordinates of K′, the symmedian point of the triangle BPC, the conic

$$\alpha'/\alpha + (\alpha'/\alpha_0-\beta'\beta_0)/(\alpha/\alpha_0-\beta/\beta_0) + (\alpha'/\alpha_0-\gamma'/\gamma_0)/(\alpha/\alpha_0-\gamma/\gamma_0) = 0$$

is the circle ABC, viz., $a\beta\gamma+b\gamma\alpha+c\alpha\beta = 0$.

Comparing coefficients, we have for co-ordinates of K′,

$$[a\alpha_0\beta_0\gamma_0,\quad \beta_0^2(a\gamma_0-c\alpha_0),\quad \gamma_0^2(a\beta_0-b\alpha_0)],$$

or

$$[a,\ -q\beta_0,\ r\gamma_0],$$

where $\quad p \equiv b/\beta_0-c/\gamma_0,\quad q \equiv c/\gamma_0-a/\alpha_0,\quad r \equiv a/\alpha_0-b/\beta_0.$

Consider now the circum-conic

$$S \equiv ap/\alpha+bq/\beta+cr/\gamma = 0.$$

It is clearly satisfied by P $(\alpha_0\beta_0\gamma_0)$ and K (abc). On substituting the co-ordinates of K′, we have $p-b/\beta_0+c/\gamma_0$, which vanishes.

Hence K′, and therefore the symmedian points of the triangles CPA, APB lie on the conic S = 0.

13518. (The late Professor Sylvester. January 1897.)—If N is any even number, and $\lambda, \mu, \nu, \ldots, \omega$, are all the prime numbers greater than $\frac{1}{4}$N and less than $\frac{3}{4}$N (excluding $\frac{1}{2}$N when it is a prime), show that the number of ways of composing N with two of these primes is the coefficient of x^N in $\left(\frac{1}{1-x^\lambda}+\frac{1}{1-x^\mu}+\frac{1}{1-x^\nu}+\ldots+\frac{1}{1-x^\omega}\right)^r$ divided by $r(r-1)\theta^{r-2}$, when r is an integer not less than 2, and θ is the number of the primes $\lambda, \mu, \nu, \ldots, \omega$.

Solution by J. Hammond, M.A.

In the expansion of $(1-x^\lambda)^{-1}+(1-x^\mu)^{-1}+\ldots$, write

$$X_k = x^{k\lambda}+x^{k\mu}+\ldots,$$

rejecting all powers of x higher than x^N : then the coefficient in question is that of x^N in $(\theta+X_1+X_2+X_3)^r$. The only terms of this which need be considered are

$$r\theta^{r-1}X_2+\tfrac{1}{2}r(r-1)\theta^{r-2}X_1^2 \ldots\ldots\ldots\ldots (1).$$

For x^N is an even power, and $X_1^\alpha X_2^\beta X_3^\gamma$ is an odd function of x, when $\alpha+2\beta+3\gamma$ is odd ; and, if λ is the least of the given primes, the lowest power of x in $X_1^\alpha X_2^\beta X_3^\gamma$ is $x^{(\alpha+2\beta+3\gamma)\lambda}$, which is higher than x^N when $\alpha+2\beta+3\gamma$ is not less than 4, because $4\lambda > N$.

Moreover, $X_2 = \Sigma x^{2\lambda}$ does not contain the term x^N because $\frac{1}{2}$N is not one of the given primes ; and

$$X_1^2 = X_2+2\Sigma x^{\lambda+\mu}.$$

Hence the coefficient of x^N in (1) is that of x^N in

$$r(r-1)\theta^{r-2}\Sigma x^{\lambda+\mu},$$

and the theorem in question follows immediately.

12599. (Rev. T. R. Terry, M.A.)—A rod AB, of length a and weight W, is supported by two pegs D and E, at distances $\frac{1}{3}a$ and $\frac{1}{4}a$ from A and B respectively. From A and B are suspended weights w and $3w$, and the rod breaks. Find the position of the point of breakage, and show that for no value of the ratio w : W can this point lie between D and E. Discuss fully the cases (1) when $w = 0$, (2) when W = 0, (3) when $120w = 7$W.

Solution by James Blaikie, M.A., C. W. Adams, *and* W. N. Bailey.

To find the point of breakage we must consider the parts AD, DE, EB separately. The forces which tend to break AD are the weight w at A and the weight of that

part of the rod $\frac{1}{3}$W at the mid-point of AD. The moment of these forces is clearly greatest at D where it is equal to $\frac{1}{3}aw+\frac{1}{18}a$W. Thus if this part of the rod breaks it will break at D. Similarly, if the part EB breaks it will break at E where the moment of the forces on EB is $\frac{3}{4}aw+\frac{1}{32}a$W. The only force tending to break the rod between D and E is the weight of DE. The moment of this force is greatest at D and E. Thus the rod cannot break between D and E. It seems clear therefore that the rod will break at D, E, or at D and E simultaneously, according as

$$\tfrac{1}{3}aw+\tfrac{1}{18}a\mathrm{W} > = < \tfrac{3}{4}aw+\tfrac{1}{32}a\mathrm{W},$$

i.e., according as $\quad 7\mathrm{W} > = < 120w.$

Case 1, $w = 0$.—In this case $7\mathrm{W} > 120w$. Therefore the rod will break at D.

Case 2, $\mathrm{W} = 0$.—In this case $7\mathrm{W} < 120w$. Therefore the rod will break at E.

Case 3, $120w = 7\mathrm{W}$.—In this case, as already seen, the rod will break at both points simultaneously.

17661. (Professor E. J. Nanson.)—Given in a plane four points and a line, the four conics each having three of the points for a self-conjugate triad, and the fourth as pole of the given line, meet the given line in the same two points.

Solution by W. N. Bailey.

Let the four points be A, B, C and D. Take ABC as triangle of reference, and let the co-ordinates of D be (f, g, h), and the equation of the line $lx+my+nz=0$. Any conic having ABC for a self-conjugate triad is $ux^2+vy^2+wz^2=0$. The polar of (f, g, h) is $ufx+vgy+whz=0$, which is the given line if

$$uf/l = vg/m = wh/n.$$

Therefore one of the four conics has the equation

$$lx^2/f+my^2/g+nz^2/h=0 \quad\ldots\ldots\ldots\ldots\ldots\ldots(1).$$

A conic to which BCD is self-polar is

$$u'x^2+v'(gx-fy)^2+w'(hx-fz)^2=0.$$

If the given line is the polar of A with respect to this conic, we have

$$(u'+v'g^2+w'h^2)/l = -fgv'/m = -fhw'/n.$$

Hence the equation of this conic is

$$lx^2-mf/g.y^2-nf/h.z^2+2nzx+2mxy=0,$$

or $\quad 2x/f(lx+my+nz) = lx^2/f+my^2/g+nz^2/h,$

and this evidently meets the given line in the same points as (1). Similarly for the other conics.

17693. (Professor Neuberg.)—Pour quelles valeurs entières de x, y, z l'expression $\mathrm{N}=5^x+7^y+11^z$ est-elle divisible par 13 ?

Solutions (I) *by* Lt.-Col. Allan Cunningham, R.E.; (II) *by* Norman Alliston; (III) *by* W. J. Ashdown.

(I) Since $5^4\equiv+1$, $7^{12}\equiv+1$, $11^{12}\equiv+1$ (mod 13), there are an infinity of solutions. If x, y, z be any one solution, then the general values (say X, Y, Z) of x, y, z are given by

$$\mathrm{X}=4\lambda+x,\quad \mathrm{Y}=12\mu+y,\quad \mathrm{Z}=12\nu+z,$$

where λ, μ, ν are any integers (including 0) making X, Y, Z all positive. And it suffices to take $x \not> 3$, $y \not> 11$, $z \not> 11$.

The following table gives the *residues* modulo 13 of 5^x, 7^y, 11^z up to $x=3$, $y=11$, $z=11$:—

$x, y, z =$	0	1	2	3	4	5	6	7	8	9	10	11
$5^x\equiv$	1,	5,	−1,	−5,								
$7^y\equiv$	1,	−6,	−3,	5,	−4,	−2,	−1,	6,	3,	−5,	4,	2
$11^z\equiv$	1,	−2,	4,	5,	3,	−6,	−1,	2,	−4,	−5,	−3,	6

x	5^x	7^y+11^z
0	1	−1
1	5	−5
2	−1	+1
3	−5	+5

Then assigning to x the values $x=0, 1, 2, 3$ in succession, the table gives the residue of 5^x, and thus determines the necessary residue of (7^y+11^z) as shown in the small table adjoining. It is now easy to pick out from the main table the values of y, z, which shall give to (7^y+11^z) the proper residues shown in the small table. Thus for $x=0$, the values of y, z are shown in the table below; $y=6$ and $z=6$ are impossible. Similarly the solutions for $x=1$, 2, 3 can be easily picked out.

$x=0$	$y=$	0,	1,	2,	3,	4,	5,	6,	7,	8,	9,	10, 11
	$z=$	1,	3,	7,	5,	4,	0,	.	11,	8,	2,	9, 10

(II)

$m=12n+$		0	1	2	3	4	5	6	7	8	9	10	11
Residues of 13 into	5^m	1	5	12	8	1	5	12	8	1	5	12	8
	7^m	1	7	10	5	9	11	12	6	3	8	4	2
	11^m	1	11	4	5	3	7	12	2	9	8	10	6

From this table it is seen that 11^v-r, $7^v-r=13u$ can always be solved, but $5^v-r=13u$ only when $r=13n\pm1$, ±5. We may therefore take any values, a and b, for x and y, and 13 will divide 5^a+7^b+r; also $11\ -r$, and so the sum $5^a+7^b+11^c$.

Alternatively any values may be given to x and z, when y will have some corresponding form $12n+c$.

For contrary instances take y and z so that the residue of 13 into 7^y+11^z is of some other form than $13n\pm1$, ±5,

Ex.—Make $x=12p+5$, $y=12q+8$. The table gives $5+3=8$ for residue; and against 11^m, 8 stands under $12n+9$. Therefore 13 divides $\quad 5^{12p+5}+7^{12q+8}+11^{12n+9}$.

N.B.— $r=13n$ must be excepted.

[Rest in *Reprint*.]

17230. (S. Narayanan, B.A., L.T.)—Show that the trilinear equation of an in-conic of a triangle ABC having a focus at (l, m, n) is $\quad \Sigma\,[l\alpha\,(m^2+n^2+2mn\cos\mathrm{A})]^{\frac{1}{2}}=0.$

Note by Professor K. J. Sanjána, M.A.

This is exactly my Question 14289. Besides Mr. Davis' excellent solution by reciprocation (*v. Educational Times*, May, 1912, and *Reprint*, New Series, Vol. xxii, p. 88) a direct solution can be obtained without much difficulty: see *Journal, Indian Math. Soc.*, for December, 1910.

13504. (George Heppel, M.A.)—Show that if any two of the following four fractions are equal, all four are equal:—

$$\frac{\sin(\theta+\alpha)\sin(\beta+\gamma)}{\sin\gamma\sin(\alpha+\beta)},\quad \frac{\sin(\theta-\beta)\sin(\alpha+\delta)}{\sin\delta\sin(\alpha+\beta)},$$

$$\frac{\sin(\theta+\gamma)\sin(\alpha+\delta)}{\sin\alpha\sin(\gamma+\delta)},\quad \frac{\sin(\theta-\delta)\sin(\beta+\gamma)}{\sin\beta\sin(\gamma+\delta)}.$$

Solutions (I) *by* W. F. Beard, M.A., *and* H. R. Wales; (II) *by* W. N. Bailey.

(I) Number the fractions (1), (2), (3), (4). Suppose (1) = (2). Therefore $\sin(\theta+\alpha)\sin(\beta+\gamma)\sin\delta=\sin(\theta-\beta)\sin(\alpha+\delta)\sin\gamma$;

therefore $\tan\theta\,[\cos\beta\sin(\alpha+\delta)\sin\gamma-\cos\alpha\sin\delta\sin(\beta+\gamma)]$

$$=\sin\beta\sin\gamma\sin(\alpha+\delta)+\sin\alpha\sin\delta\sin(\beta+\gamma);$$

therefore

$$\tan\theta\,[\sin(\alpha+\delta)\{\sin(\beta+\gamma)-\sin(\beta-\gamma)\}$$
$$-\sin(\beta+\gamma)\{\sin(\alpha+\delta)-\sin(\alpha-\delta)\}]$$
$$=\sin(\alpha+\delta)\{\cos(\beta-\gamma)-\cos(\beta+\gamma)\}$$
$$+\sin(\beta+\gamma)\{\cos(\alpha-\delta)-\cos(\alpha+\delta)\};$$

therefore

$$\tan\theta\,[\cos(\alpha+\beta-\gamma+\delta)-\cos(\alpha-\beta+\gamma+\delta)$$
$$+\cos(-\alpha+\beta+\gamma+\delta)-\cos(\alpha+\beta+\gamma-\delta)]$$
$$=\sin(\alpha+\beta-\gamma+\delta)+\sin(\alpha-\beta+\gamma+\delta)+\sin(-\alpha+\beta+\gamma+\delta)$$
$$+\sin(\alpha+\beta+\gamma-\delta)-\sin(\alpha+\beta+\gamma+\delta)\ldots(\mathrm{i}).$$

If we interchange α with γ and β with δ this result is unaltered. Hence, if (1) = (2), (3) = (4).

Again, if we interchange α and γ in (i) it remains unaltered. Hence interchanging α and γ in the equation (1) = (2),

$$[\sin(\theta+\gamma)\sin(\alpha+\beta)]/\sin\alpha=[\sin(\theta-\beta)\sin(\gamma+\delta)]/\sin\delta;$$

therefore

$$[\sin(\theta+\gamma)\sin(\alpha+\delta)]/[\sin\alpha\sin(\gamma+\delta)]$$
$$=[\sin(\theta-\beta)\sin(\alpha+\delta)]/[\sin\delta\sin(\alpha+\beta)];$$

therefore $(3) = (2)$;

therefore $(1) = (2) = (3) = (4)$.

[Rest in *Reprint*.]

QUESTIONS FOR SOLUTION.

17743. (S. W. H. Thompson.)—Consider the steady irrotational motion of a perfect fluid past an infinite plane lamina, moving uniformly at right angles to the lamina at a great distance away; under the hypothesis that behind the plate there is still fluid. Show that, if there are n inflexions in each branch of the curve separating the still from the moving fluid, the solution is given by

$$dz/dw = [\sqrt{c/w} + \sqrt{(c/w-1)}]\, e^{(a_1+a_2/w+a_3/w^2+\ldots+a_n/w^{n-1})\sqrt{c/w}\sqrt{(c/w-1)}},$$

the velocity of the stream at a great distance away being unity, and where $z \equiv x+\iota y$, $w \equiv \phi+\iota\psi$, and c, a_1, a_2, ..., a_n are real constants and $a_0 \geqslant 0$. [In the case of each branch having no inflexion, this reduces to the well-known solution

$$dz/dw = \sqrt{c/w} + \sqrt{(c/w-1)}.$$

See Lamb's *Hydrodynamics*, § 76.]

17744. (W. T. Moore, B.Sc.)—For what form of $\phi(x)$ will $\int_0^l \frac{f(x)\,dx}{\phi(x)}$ be a minimum, $f(x)$ being of known form between the limits 0 and l. Check for the case when $f(x) = ax$, where a is a constant.

17745. (W. N. Bailey. Suggested by Question 17725.)—Show that

$$\int x^r \cos\left(x+\frac{r\pi}{2}\right) dx = x^{r+1}\frac{d^r}{dx^r}\left(\frac{\sin x}{x}\right),$$

and

$$\int x^r \left\{e^x + \sin\left(x+\frac{r\pi}{2}\right)\right\} dx = x^{r+1}\frac{d^r}{dx^r}\left(\frac{e^x-\cos x}{x}\right).$$

17746. (Professor K. J. Sanjána, M.A.)—Find the sum of the series (m, k being positive integers)

$$(1)\quad 1-\frac{(m+k)^2}{1!}\frac{1}{m+1}+\frac{(m+k)^2[(m+k)^2-1^2]}{2!}\frac{1}{(m+1)(m+2)}$$
$$-\frac{(m+k)^2[(m+k)^2-1^2][(m+k)^2-2^2]}{3!}\frac{1}{(m+1)(m+2)(m+3)}+\ldots,$$

$$(2)\quad 1-\frac{(m+k)^2}{1\,1!}\frac{2m+1}{m+1}+\frac{(m+k)^2[(m+k)^2-1^2]}{1.3\,2!}\frac{(2m+1)(2m+3)}{(m+1)(m+2)}$$
$$-\frac{(m+k)^2[(m+k)^2-1^2][(m+k)^2-2^2]}{1.3.5\,3!}\frac{(2m+1)(2m+3)(2m+5)}{(m+1)(m+2)(m+3)}+\ldots,$$

$$(3)\quad 1-\frac{(2m+2k+1)^2-1^2}{2!}\frac{1}{2m+4}$$
$$+\frac{[(2m+2k+1)^2-1^2][(2m+2k+1)^2-3^2]}{4!}\frac{1.3}{(2m+4)(2m+6)}$$
$$-\frac{[(2m+2k+1)^2-1^2][(2m+2k+1)^2-3^2][(2m+2k+1)^2-5^2]}{6!}$$
$$\times\frac{1.3.5}{(2m+4)(2m+6)(2m+8)}+\ldots,$$

and

$$(4)\quad 1-\frac{(2m+2k+1)^2-1^2}{3!}\frac{2m+3}{2m+4}$$
$$+\frac{[(2m+2k+1)^2-1^2][(2m+2k+1)^2-3^2]}{5!}\frac{(2m+3)(2m+5)}{(2m+4)(2m+6)}$$
$$-\frac{[(2m+2k+1)^2-1^2][(2m+2k+1)^2-3^2][(2m+2k+1)^2-5^2]}{7!}$$
$$\times\frac{(2m+3)(2m+5)(2m+7)}{(2m+4)(2m+6)(2m+8)}+\ldots.$$

17747. (C. M. Ross, M.A.)—If Δ_{n+1} denotes the $(n+1)$-th order determinant

$$\begin{vmatrix} 0, & x, & x, & \ldots, & x \\ \alpha, & 0, & x, & \ldots, & x \\ \alpha, & \alpha, & 0, & \ldots, & x \\ \ldots & & \ldots & & \ldots \\ \alpha, & \alpha, & \alpha, & \ldots, & 0 \end{vmatrix};$$

show that $\Delta_{n+1}+\alpha\Delta_n = (-1)^n \alpha x^n$.

Hence solve the equation $\Delta_{n+1} = 0$.

17748. (B. Howarth.)—If m, n, p denote integers, prove that (1111 ... to mp terms) × (1111 ... to np terms) is not a factor of 1111 ... to mnp^2 terms.

17749. (D. Biddle.)—$N = xy = n_1+n_2+n_3+n_4$. Partition N in such wise that $n_1n_4 = n_2n_3$; that $n_3 = n_2+1$, and that n_1+n_2, n_3+n_4 shall each be multiples of one factor of N, whilst n_1+n_3, n_2+n_4 are multiples of the factor remaining, *e.g.*,

$$559 = 13.43 = 30+99+100+330.$$

17750. (J. Hammond, M.A.)—If, when 1 is reckoned as a prime but 2 is not, P (x) means the number of primes which do not exceed the positive limit x, and m is a given number; find limits to the value of n when

$$P(n)+P(n/2)+P(n/3)+\ldots+P(n/m) = n.$$

Ex.—When $m = 4$,

$$P(8)+P(4)+P(2\tfrac{2}{3})+P(2) = 4+2+1+1 = 8,$$
$$P(15)+P(7\tfrac{1}{2})+P(5)+P(3\tfrac{3}{4}) = 6+4+3+2 = 15,$$

and n is any whole number from 8 to 15 inclusive.

17751. (Norman Alliston.)—Is the following slight variation of Fermat's polygonal theorem sound? Every number is the sum of, at most necessary, $(m+2)$ numbers of the form $m[\frac{1}{2}(t^2-t)]+t+1$.

17752. (Professor E. J. Nanson.)—If σ_p is the arithmetic mean of the p-th powers of a number of positive quantities which are not all equal, and ϖ_p is the arithmetic mean of their products p together, then $\sigma_p\sigma_q > \varpi_{p+q}$.

17753. (C. E. Youngman, M.A.)—Three normals (or tangents) to the hypocycloid with cusps ABC meet at D, and three more meet at D′, the isogonal conjugate of D in ABC; prove that the six feet lie on a circle.

17754. (E. R. Hamilton, B.Sc.)—In Question 17571 (V. Daniel, B.Sc.), what are the loci of I_1, I_2, and the circum-centre of AIC as B moves according to the conditions stated?

17755. (Professor R. Srinivasan, M.A.)—Show that the equation in bipolar co-ordinates to two straight lines equally inclined to the line joining the poles is of the form

$$\alpha^2(r^2-r'^2)^2-2c(c+\beta)r^2-2c(c-\beta)r'^2+c^2(c^2+\gamma^2) = 0,$$

where c is the distance between the poles. Show also that α, β, γ are not independent, but can be expressed in terms of two independent quantities.

17756. (R. F. Davis, M.A.)—PT is a variable tangent to a given ellipse, one of whose foci is S. A parabola is drawn having S for its focus and PT for its directrix. Prove that the common tangents to the two curves intersect on a fixed circle.

17757. (*Communicated by* A. M. Nesbitt, M.A.)—If S, S′ be two conics such that a quadrilateral can be circumscribed about S and also inscribed in S′, prove that $\Theta(\Theta^2-4\Delta\Theta')+8\Delta^2\Delta' = 0$.

17758. (Professor J. C. Swaminarayan, M.A.)—A triangle is formed by tangents at the points $(at_r^2, 2at_r)$ $r = 1, 2, 3$, on the parabola $y^2-4ax = 0$. Show that the equation of its nine-point circle is

$$x^2+y^2-\tfrac{1}{2}ax(t_2t_3+t_3t_1+t_1t_2-1)-\tfrac{1}{2}ay(3t_1+3t_2+3t_3+t_1t_2t_3)$$
$$+\tfrac{1}{2}a^2(t_1+t_2+t_3)(t_1+t_2+t_3+t_1t_2t_3) = 0.$$

17759. (H. D. Drury, M.A.)—The angles formed by producing the opposite sides of a cyclic quadrilateral are bisected, and each bisector is produced to cut the two remaining sides; show (1) that the four points so found are the corners of a rhombus, (2) that the side of the rhombus is half the harmonic mean between the diagonals of the quadrilateral, (3) that the centre of the rhombus lies on the line joining the middle points of the three diagonals of the quadrilateral.

17760. (W. F. Beard, M.A.)—PQRS is a quadrilateral; PQ, RS meet at A, QR, PS at B; any straight line cuts SP, PQ, QS at C, D, E; AC, BD meet RQ, RS, at F, G. Prove that E, F, G are collinear.

17761. (W. L. Marr.)—P is any point on the circumference of a circle circumscribing ABC. PA meets BC in X′, PB meets CA in Y′, PC meets AB in Z′. X is the harmonic conjugate of X′ relative to BC. Y and Z are similarly defined. Show that XYZ is a straight line passing through the symmedian point. α_0, β_0, γ_0 are the co-ordinates of any point on this line XYZ. Show that $\Sigma\alpha_0\alpha = 0$ is the equation of a line which remains parallel to itself for any position of α_0, β_0, γ_0.

17762. (A. E. Jones.)—In the triangle ABC, the angle ABC = 104°, the side of the square BDEF = 6 ft., the side AC = 29 ft. Find the length of AB. (No graphs acceptable.)

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I claim no right to the use of the word "Non-Flam," which I am informed is your property, and I undertake not to use it again at my shop in Naylor Street, St. Helens, aforesaid, or at any other shops where I carry on business, or at all except in connexion with flannelette of your manufacture.

I undertake to pay your solicitors' costs and the costs of the insertion of this apology in the trade and other papers as agreed between us.

MARGARET H. ROSS.

Witness to the signature of Margaret Harriet Ross,
S. BRIGHOUSE, Solicitor, Southport.

17763. (Professor NEUBERG.)—Un point M est rapporté à trois axes rectangulaires Ox, Oy, Oz. Soit P la projection de M sur l'axe Oz. Trouver le lieu de la projection M′ de P sur le rayon vecteur OM et l'enveloppe du plan mené par P perpendiculairement à OM, lorsque M parcourt un plan.

17764. (Professor K. J. SANJÁNA, M.A.)—In a spherical triangle ABC, P is the isogonal conjugate of O, the pole of the circumcircle. Prove that

$$\Sigma \cot OA \cot PA \sin(S-A) = -\tfrac{1}{8}\sec S\left\{\Sigma \sin 2A + 2\Sigma \sin(2S-2A)\right\},$$

employing the ordinary notation.

OLD QUESTIONS AS YET UNSOLVED (IN OUR COLUMNS).

14462. (G. D. WILSON, M.A.)—Prove algebraically that

$$\sum_{b=0}^{b=\lambda} \frac{(-1)^b (n-m)!\, m!}{2^{2b}(n-m-2b)!\, b!\, (m+b)!} x^{n-m-2b}(y^2-x^2)^b$$
$$= \left(\frac{y}{2}\right)^{n-m} \sum_{p=0}^{p=\lambda} \frac{(-1)^p (n-m)!\, m!\, (2n-2p)!}{(n-m-2p)!\, p!\, (m+n)!\, (n-p)!} \left(\frac{x}{y}\right)^{n-m-2p},$$

where $\lambda = \frac{1}{2}(n-m)$ if $(n-m)$ be *even*, or $= \frac{1}{2}(n-m-1)$ if $(n-m)$ be *odd*.

14470. (J. J. BARNIVILLE, B.A.)—Having $u_{n-1}+u_{n+1} = 5u_n$, prove that

$$\frac{1}{1+1}+\frac{1}{4+1}+\frac{1}{19+1}+\frac{1}{91+1}+\ldots = \frac{\sqrt{21}}{6},$$

$$\frac{1}{1+4}+\frac{1}{4+4}+\frac{1}{19+4}+\frac{1}{91+4}+\ldots = \frac{\sqrt{21}}{12},$$

$$\frac{1}{4+5}+\frac{1}{7+5}+\frac{1}{31+5}+\frac{1}{148+5}+\ldots = \frac{7+3\sqrt{21}}{90},$$

$$\frac{1}{7+5}+\frac{1}{4+5}+\frac{1}{13+5}+\frac{1}{61+5}+\ldots = \frac{7+2\sqrt{21}}{60},$$

$$\frac{1}{2+5}-\frac{1}{5+5}+\frac{1}{23+5}-\frac{1}{110+5}+\ldots = \frac{1}{14},$$

$$\frac{1}{1+1}-\frac{1}{6-1}+\frac{1}{29+1}-\frac{1}{139-1}+\ldots = \frac{\sqrt{21}}{14}.$$

14545. (Professor K. J. SANJÁNA, M.A.)—Eliminate r and α from

$$x = r(\cos\alpha+\sin\alpha), \quad y = 2a\cot 2\alpha - r(\cos\alpha-\sin\alpha),$$

and

$$2r = a\left\{\sec\alpha+\operatorname{cosec}\alpha-(2\sec\alpha\operatorname{cosec}\alpha)^{\frac{1}{2}}\right\}.$$

Hence find the locus of the centre of a circle touching a parabola and two variable perpendicular tangents. [See Vol. LXIV, p. 56.]

14591. (E. W. REES, B.A.)—Give a geometrical construction of a triangle, two sides and the in-radius being given.

14609. (R. C. ARCHIBALD, M.A., Ph.D.)—Prove the following relations between the cardioide and the three-cusped hypocycloid or tricusp:—(i) The envelope of the parabolas, with foci on a cardioide and always tangent to two fixed lines drawn at pleasure through its cusp, is a tricusp. (ii) A cusp S of a tricusp and its opposite vertex V are joined. Any tangent to the tricusp intersects this line SV in X. With centre V and radius VX, a circle is described which cuts the tangent again in P. The locus of P is a cardioide.

NOTICE TO CORRESPONDENTS.

It is requested that all Mathematical communications should be addressed to the Mathematical Editor,

2 Newton Street, Kingsway, W.C.

THE LONDON MATHEMATICAL SOCIETY.

Thursday, May 14, 1914.—Prof. A. E. H. Love, F.R.S., President, in the chair.

The following papers were communicated:—

"Diffraction by a Straight Edge": Prof. H. M. Macdonald.

"Quadratic Forms and Factorization of Numbers": The Hon. H. F. Moulton.

"On the Reduction of Sets of Intervals": Prof. W. H. Young and Mrs. Young.

"Diffraction of Tidal Waves on Flat Rotating Sheets of Water": Mr. J. Proudman.

"On the Algebraic Theory of Modular Systems": Dr. F. S. Macaulay.

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THE

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AND

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Vol. LXVII.] New Series, No. 639. JULY 1, 1914.

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Particulars concerning membership may be obtained from the Secretary.

LECTURES FOR TEACHERS.

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EXAMINATIONS.

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Practical Examination for Certificates of Ability to Teach.—The next Practical Examination will be held in October, 1914.

Examination of Foreign Teachers for Certificates of Proficiency in English.—The next Examination will commence on the 3rd of September, 1914.

Certificate Examinations. — The Christmas Examination for Certificates will commence on the 7th of December, 1914.

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Inspection and Examination of Schools.—Inspectors and Examiners are appointed by the College for the Inspection and Examination of Public and Private Schools.

The Regulations for the above Examinations can be obtained on application to the Secretary.

G. CHALMERS, *Secretary*.

Bloomsbury Square, W.C.

NOTICE.—The **AUGUST** Number of "THE EDUCATIONAL TIMES" will contain the CLASS LISTS of SUCCESSFUL CANDIDATES at the MIDSUMMER EXAMINATIONS of the COLLEGE OF PRECEPTORS.

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CONTENTS.

	Page
Leader: Serve the Country!	319
Notes	320
Fortieth Annual Conference of the Association of Head Mistresses—Women and the Civil Service—"The Morning After"—Professional Unity—Town Planning—Smaller Schools—Conference of Teachers of English—Who Pays for Education?—The Electro-culture of Children—Vocational Education—School Plays—Sir William Anson—Queen Mary's Hostel—School Journeys—Montessori Conference—The Head Master of Dulwich—Spare the Rod and . . .	
Summary of the Month	323
The Head Mistresses' Conference. By Miss Burstall	325
Registration. By Miss Robertson	326
The Association of Head Mistresses	328
The Lighter Side of Pedagogy	328
The Degree of Master in Education	329
Prize Competition	329
Association of Assistant Mistresses in Public Secondary Schools	330
The Greek Play at Bradfield	331
The College of Preceptors:—	
Meeting of the Council	332
Ability to Teach Examination: Pass List	332
Current Events	332
The Teaching of English in Junior Forms. By Dr. A. A. David	335
What Shall We Teach? By C. F. C. Padel	337
Careers for Girls. III: Household Science. By Dr. I. S. Maclean	338
The International Council of Women, 1914	339
Reviews	340
Misalliance, The Dark Lady of the Sonnets, and Fanny's First Play, with a Treatise on Parents and Children (Bernard Shaw); Education and Psychology (West); Interpretations and Forecasts (Branford); Scripture Teaching in Secondary Schools (Cradock-Watson); A History of the Royal Society of Arts (Wood); Enriques' Problems of Science (Royce); The Progress of Eugenics (Saleeby); The Education of the Child (Key); Mathematical Education (Carson).	
General Notices	346
Publications Received	350
Mathematics	352

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SERVE THE COUNTRY!

Dr. Georg Kerschensteiner, Director of Education in Munich, is already well known in this country, and the English translation, just issued, of a collection of essays and articles, under the title "The Schools and the Nation," will strengthen his reputation as a sound thinker who has a special message to this generation. In the first chapter especially he deals with "The Problem of National Education" in such a way as to arrest the attention and focus it on one thing that is lacking in organized systems, not in Germany alone, but among all nations that are seeking to develop, or that have developed, a national system. The thing that is lacking is a firm conviction of the need of arousing in school life a sense of social service, a feeling of duty to the community.

The many efforts that are now being made in England, in various ways, by numerous associations, show a widespread desire to broaden the sympathies of school life and to counteract the deadening effects of egotism by the vivifying impulses of social service. In administrative matters the State is moving along socialistic lines. That is to say, the State concerns itself more and more with the interests of the citizens; private initiative is being replaced by State action. Apart from the State in its administrative aspect, an entirely different set of influences is at work. The citizen is becoming more individualistic. The general effect of intellectual education in the schools is to develop the sense of personality. In intellectual work the pupil stands alone, and the frankest egotism is encouraged. Educators are right in seeking to develop personality, and in endeavouring to respect individuals; but the process, separated from other processes and carried to an extreme, may work injury to the community. Selfishness is moral and spiritual death. Complete development can only be attained by a person who, while he retains his own powers to the highest possible degree, does so in relation to the community in which he lives.

The attitude of many people towards the State is one of two, varying according according to the mood of the moment: an attitude of grumbling, combined with a willingness to escape the obligation, as in the case of the income-tax or the regulations for motor-driving; either this or an attitude of expectation in which the State is viewed as a money-bag, whose strings can be unloosed by importunity or artifice. A State does not long survive in a sound condition unless it is supported by the patriotism of the citizens. The tendency of modern legislation is to govern unwilling subjects by means of regulations, inspectors, and police. The sense of duty towards the community is not definitely drawn out and strengthened in our official systems of intellectual education. In the Army and the Navy, the two "Services," the tradition of service to the country remains a vigorous power. For a soldier or a sailor duty comes first; the feeling may co-exist with a desire for wealth, comfort, power, or other material things; but these do not come first.

The phrase "to serve one's country" must be given a wider connotation than is generally assigned to it. All honest, necessary work is service to the community. The doctor who, by example and advice, lessens illness and increases health serves his country. The clergyman who leads his congregation to a firmer conviction of spiritual life serves his country. The woman who keeps herself in health in order that she may give birth to healthy children serves her country. The road-sweeper who removes injurious matter serves his country.

Some time ago the nation awoke to the danger of a separation between the interests of the individual and of the State. The order went out that "Civics" must be taught: a regulation good in itself, but insufficient to meet the need. One must know the constitution under which one is governed; but that knowledge does not

necessarily produce patriotism. Children do not learn by listening, but by doing. In many boarding schools the sense of social union, of the common interests of the community, is aroused and finds its opportunity of growth, not in the classrooms, but on the playing fields and in the out-of-school activities, such as the support of a Settlement in a crowded area of population. In some schools a sense of mutual helpfulness and of working for the common welfare pervades the whole life of the pupils. In day schools there are, perhaps, fewer opportunities of action for the common good. But neither in day schools nor in boarding schools have the possibilities been used to their utmost.

Is it too daring to suggest a means by which the egotism of intellectual education may be modified? Dr. Kerschensteiner does not think so. The remedy is to be found in mutual work and helpfulness. The pupils help one another in the classroom, on the playing fields, in all the varied activities of a school of to-day. They help the teachers; the teachers help them. The school is their community; but, at the same time, they do not remain in ignorance of the wider community outside the school, with which they must have sympathy, and which, later, they will know more fully. The way to develop the sense of social life and social service is to do things with and for others. In this way is satisfied the twofold desire of every child, to find an outlet for its own activities, and to live in harmony with its surroundings.

Completion is found in the satisfaction of these two instincts, and joy of life then becomes possible. The sense of mutual service, bringing real joyousness into life and leading to service for the country, can be brought out during the school period, provided only that teachers themselves are firmly convinced both of the need and of the possibility of meeting the need.

NOTES.

Fortieth Annual Conference of the Association of Head Mistresses.

The Fortieth Annual Conference of the Head Mistresses' Association was held at Redland School, Bristol, last month in surroundings that would come as a pleasant surprise to members who knew of Bristol only as a commercial centre. The University joined with the girls' schools in welcoming and entertaining the visitors. The first session was occupied mainly in receiving the reports of Sub-Committees and of representatives on other bodies. An idea of the widespread activity of the Association may be gathered from the fact that the Annual Report deals with twenty-five of these subsidiary reports. In addition to the proof they afford of work done, they contain important information on a large number of subjects, such as Registration, Pensions, Overseas Schools, and Openings for Girls. Arising out of these reports one resolution was presented and carried with two dissentient votes. That was the resolution put forward by the Federal Council, welcoming and approving the report of the Departmental Committee on the Superannuation of Teachers. The exact terms of this resolution we give in another column; and we are also fortunate in being able to give a general account of the Conference, written, most kindly, by Miss Burstall.

Women and the Civil Service.

The subject that stirred the Conference more particularly was the report of the Royal Commission on the Civil Service. Miss Oldham, in a speech of great force, brought forward a series of resolutions designed to claim for women more equitable treatment from the Civil Service Commissioners. In the course of her remarks Miss Oldham quoted from a leading article of this paper, in support of the views she advanced on the position of married women and compulsory retirement. A part of the resolutions proposed by Miss Oldham contained an expression of strong dissent from the opinion of the majority of the Commissioners that women are inferior to men in power of sustained work, adaptability to varying conditions, and continuity of service. After an eloquent plea from Miss Faithfull for a more appreciative attitude towards the work of the Commission, it was decided to delete this series of resolutions, as the Conferclear did not wish to emphasize any comparison between men and women in power of work. But it was equally clear that the members expected the Committee to replace the deleted resolutions. This was not done at the time.

"The Morning after."

Next morning, on reassembling, the members found the neighbourhood of the Conference Hall painted blue, with *Morning Post* placards announcing the "Startling Decision of Head Mistresses," and it was found that the *Morning Post* had argued ingeniously, and with some apparent glee, that, because the resolution dissenting from the opinion of the Commissioners had been deleted, therefore the Conference admitted the inferiority of women in power of work. We hold that such an inference was not justified either by the general attitude of the Conference or by the known views of the Association. Our readers will not have forgotten a letter written by the Officers of the Association on this subject which appeared in the *Times* of May 27. The Conference was indeed "startled" at the attitude of the press, and urgency was at once moved in order that fresh resolutions could be introduced. These, which we give on another page, were carried without a dissentient vote. We have referred to this matter at some length, because it is most important that the misunderstanding of the daily press should be pointed out. Many members wished to show their appreciation of the sympathetic attitude of some of the Commissioners, and others disliked the idea of instituting comparisons; but at no moment was there any hesitation in rejecting the views of the majority of the Commissioners.

Professional Unity.

The President of the Association, Miss Robertson, of Christ's Hospital, gave an excellent address on the value of Registration as a step towards professional unity. We quote this in full in another column. Here we call attention to two particular points that Miss Robertson advanced. She spoke of elementary education as having been planned from the outside without philosophic basis or distinct purpose, and said that the mass of the people had been strangely silent towards it. But she considered it one of the most hopeful signs of the times that in the Workers' Educational Association an instrument was slowly forging itself which would bring to bear on the training given in the primary schools the instructed opinion of the classes most nearly acquainted with their working and their output. The other point was Miss Robertson's frank appreciation of the valuable help and encouragement given by the Inspectors of the Board of Education and by the Board itself, especially in the matter of the teaching of English, "which may serve the cause of unity by enabling scholars in every kind of school to use our common language with real intelligence."

Town Planning.

The proposals to establish a Chair of Town Planning in the University of London is another welcome indication that the University is broadening its purview to meet the needs of the times. A Summer School of Town Planning has also been organized by the University, and will be held in the School of Architecture at University College from August 3 to 15. A series of about twenty-five lectures by leading authorities will be given, and in connexion with the School of Architecture a special department of town planning will shortly be formed. Mr. Herbert Samuel, President of the Local Government Board, will deliver the opening address at a reception of students to be held at University College. It is said that the Local Government Board have some two hundred town-planning schemes awaiting approval. "It is now beginning to be realized [we quote from the circular of the school] that the Town-Planning Act will very greatly affect the lives of the people; more, perhaps, than any other Act of recent years."

Smaller Schools.

Viscount Bryce, in opening an extension of Bromsgrove School, said that he always felt great faith in what he might call the smaller public schools. The great public schools subjected the boy to too great a strain by imposing upon him too great a weight of custom and uniformity in life and thought. He thought it very desirable that there should be many smaller schools in addition to the large schools. In the smaller schools there was something more of a family character and freer opportunities for the development of individual tastes. He thought it an exaggeration to say that the great schools were the main feeders of the principal streams of our national life. It is certainly true that there may be greater freedom in the smaller schools and greater opportunity for the personality of the head master to influence the boys. Had Lord Bryce possessed first-hand knowledge of private schools he would, perhaps, have pointed out that the advantages he spoke of are possessed in a great degree by schools in private hands.

Conference of Teachers of English.

The support given to the Conference of Teachers of English, to be held at Stratford-on-Avon from August 1 to 8, has been so large that for some time past applications from teachers have been of necessity refused. The Committee have now decided to organize a second week's Conference, to follow the first (August 8 to 15). There will be accommodation for about 240 teachers at the second Conference, and applications should be made at once to the Conference Secretary, Theatre Box Office, Stratford-on-Avon. The program will include the following subjects: the Interpretation of Drama, Poetry and the Child, the Study of Words, the Essay, Prose and Verse Composition, and the Teaching of Shakespeare. The Conference will undoubtedly do much good. The times are ripe, or indeed over-ripe, for a more serious investigation of the best methods of teaching the mother tongue. We shall give a report of the Conference, and continue a series of articles on the subject which opens this month with a valuable contribution from the Head Master of Rugby.

Who pays for Education?

Dr. Herringham, whose name appears in the "Birthday" list of Knights, addressing the graduates of London University on last Presentation Day, insisted upon a financial aspect of higher education which is frequently ignored. It is sometimes argued that the working man is pauperized because the nation spends some £3 or £4 a year on the education of his child. We rarely hear the same argument addressed to the middle-class parent who pays from £4 to £10 a year for an education that costs the school from £14 to £25. In either case the child benefits from the application of public funds, but the pupil in the secondary school benefits to a larger extent. Dr. Herringham rams home the same point of view upon the University student. A student's fees represent half the cost of education in the University of London. "You are every one of you," said the Vice-Chancellor, addressing the newly made graduates, "more than half educated by other people's money." This, he went on to say, was owing to no personal affection for the individual student, but it was an endeavour to increase the wealth and prosperity of the country, and especially the wisdom of its citizens, "for on that ultimately must the stability of every country depend."

The Electro-Culture of Children.

Sir James Crichton Browne may have startled his audience, at a meeting of the Child Study Association in Edinburgh, when he advised caution in the application of

electricity to child culture. Caution is certainly necessary; and the obvious fear is felt lest special stimulation in early years should produce a dangerous reaction when the stimulation is removed. But experiments have been carried out with chickens. It is said that the weaker chickens were made strong and the healthy ones became better layers, and that no evil after-effects were noticed. Experiments with young children are being carried out in Sweden. A correspondent in the *Times* says: "It has now to be determined whether any forcing of the intellect or of development in the child will be attended by reaction after the treatment has stopped. The electro-culture of children will inevitably be a very prolonged study for this reason, but it is to be hoped that, by some suitable co-operation between the pure physicist and the medical man, the all important question of the correct type of current, its intensity and dosage may be expeditiously determined."

Vocational Education.

The term "Vocational Education" has been much misunderstood in this country and has often been opposed on mistaken grounds. In his recent volume of essays, to which we make allusion elsewhere, Dr. Kerschensteiner makes his own views quite clear. He looks upon this form of instruction, not as a bias given to lessons during school life, but as definite instruction in the principles and practice of the career chosen, after it has been chosen. If the State or the schoolmaster were to say: "Such and such boys shall be trained in a certain way because they will become bricklayers," we should all oppose the view. But when the trade is chosen, for one reason or another, then is the time to give instruction. And this instruction, according to the Munich Director, must be given in no narrow spirit—not to produce technical skill, but to widen the outlook and make the life fuller. Higher or post-school education is far from popular. Miss Robertson, at Bristol, said: "We must recognize, in all humility, that many growing boys and girls who are capable of becoming useful citizens are frankly bored by most of the existing forms of higher education." The remedy seems to lie in making education bear more closely on the occupation that the boy or girl has adopted.

School Plays.

We give in another column a report by our representative of the "Alcestis" performed last month by the boys of Bradfield College. The traditions established during the reign of Dr. Gray were well maintained. We may also note an excellent performance of "Comus," given by the girls of Wycombe Abbey. When the weather permitted, the action took place under the beech trees in the Abbey grounds. On the one day that was wet the Great Hall was converted into a bower of greenery, which gave a satisfactory setting. Of the masque as a whole we may say that it was very successful. An orchestra and choir of not far short of two hundred rendered the music and songs with exceeding charm. The dances, especially invented and arranged by members of the staff, delighted the audience by their suitability and grace, and by the eager joyousness of the young dancers. The speaking parts were difficult for inexperienced performers, but the long declamations were remarkable for the dignity and facility of their delivery. Comus himself, or rather herself, had thought out an original rendering of the part which was most effective and convincing.

Sir William Anson.

Sir William Anson died on the 4th of last month, over seventy years of age. As a University administrator and as a teacher of Law he has won for himself no mean reputation; but it is as Minister of Education that we speak of him here. On the sudden retirement of Sir John Gorst, in the midst of the passage of the Education Act of 1902, Mr. Balfour called upon Sir William Anson to take the post of Parliamentary Secretary to the Board of Education. It was a stirring period for the administration of education in England. Sir William saw the Act passed that swept away the School Boards, handed over elementary education to the County and Borough Councils, and laid the foundations of the organization of secondary education. He held the post until 1905. His death leaves a Parliamentary vacancy for the University of Oxford. Prof. Gilbert Murray has been proposed, but a Liberal has not much chance of success. The Unionist candidate is Mr. R. E. Prothero.

Queen Mary's Hostel.

Lord Rosebery, speaking as Chancellor of London University, warmly welcomed "another encroachment on male and selfish institutions." The occasion of his utterance was the laying of the foundation stone by the Princess Christian of the new Hostel for the training of women in the home sciences. In another column of this issue Dr. MacLean gives an account of what has been done in this direction at King's College for Women and at other institutions. We mentioned last month that the distinction of sex had now been removed at King's College, which is in future open to men and women alike. The Hostel at Campden Hill will be for women students taking the domestic science course of the University. Lord Rosebery spoke with some feeling of the value of college or hostel life as distinguished from the life of the University. Without the comradeship of a common life, he doubted if any student got the best from a University. The combination of the two, he said, was the perfect kind of University teaching.

School Journeys.

School journeys are a valuable aid to the education of young people, and we welcome the appearance of "The School Journey Record" for 1913, the issue of which has been made possible by the generosity of one of the Vice-Presidents of the School Journey Association. For, like many other useful organizations, this Association lacks funds. It seeks support from subscribers, from the Board

of Education, and from Local Authorities. We share the hope expressed in the Report that, if the Authorities step in to help, they will not interfere with the large measure of liberty which at present prevails and which is one of the chief charms to teacher and pupil alike. The report contains all the information that can be gleaned about journeys actually undertaken, route, cost, camping accommodation, and other essential details. Any school contemplating a "journey" should certainly have a copy of this book, which can be obtained from the Secretary, 51 Elm Grove, Peckham, S.E.

Montessori Conference.

The Montessori Society have arranged a Conference at East Runton, near Cromer, to be held from July 25 to 28. The object of the Conference is to draw together in a spirit of fellowship, and under pleasant holiday conditions, those interested in the education of the child from the Montessori standpoint of self-development under sympathetic guidance in an atmosphere of freedom. Montessori classes will be at work daily. A camp will be provided for those who prefer canvas to seaside lodgings or the hotel, at which special terms are made for those attending the Conference. Mr. Edmond Holmes, Mr. Albert Mansbridge, Mr. Norman MacMunn, and others have already given their support, and the Conference promises, we are informed, to be well attended.

The Head Master of Dulwich.

Mr. Gilkes has been Head Master of Dulwich College for thirty years, and before that he was a classical master at Shrewsbury for twelve years. The news of his approaching retirement will arouse many affectionate memories among Old Boys of both schools. Mr. Gilkes was in no sense a public man. Beyond occasional letters to the *Times*, an opportunity few head masters resist, and the publication of a few volumes dealing with education in the spirit of a philosopher, Mr. Gilkes has given the world, outside his own schools, little chance of knowing him. But he has been a "great head master," as many of his Old Boys will testify. He possessed in an unusual degree the power of making all the boys in the school, whether or not they came much under his personal attention, anxious to do their best, for the sake of his approval, of which they felt secure, though the expression of it might never reach them. That was where his power lay. Boys were roused to develop the better sides of their character, though he might never know either of the struggle or of the victory.

Spare the Rod and . . .

We are now suffering from "an unwhipped generation" —at least, that is the opinion of Sir Dyce Duckworth. He attributes a great deal of the misconduct of the times to the manner in which children are brought up in the elementary schools. "When the cane was removed from the schools Solomon's rod was taken away." Such sentiments will no doubt meet with the approval of a few; the older generation are always apt to think the young folk are perky and pushing; yet, if we believe, as many do, in progress, we must expect our children to outstrip ourselves. Some of us think of our fathers who were strict and of our grandfathers who were stricter, and may doubt whether a regime of constant repression is really most calculated to expand the opening powers. There is less restriction and repression to-day, in spite of Bernard Shaw, who is always telling us that we strangle infant life. Perhaps we allow our children more liberty because we are less certain than our forefathers. Liberty should mean a chance to develop the good: care needs still to be taken to repress the bad.

SUMMARY OF THE MONTH.

Gift to Birmingham University.

At a meeting of the Council of Birmingham University a letter from Sir George Kenrick, offering £18,000 to endow a Chair of Physics, was read. The offer was unanimously accepted, and it was resolved henceforth to term the Mason Chair of Physics the Poynting Chair. It is proposed that the title of "Mason Professor" shall be transferred to another Chair specially associated with the late Sir Josiah Mason.

Employment of Children.

The Women's Industrial Council have passed the following resolutions in support of Mr. Denman's Bill:—

(1) That this Committee heartily approves (as a preliminary measure) of the provisions contained in the Children's (Employment and School Attendance) Bill respecting—(*a*) the raising to thirteen of the minimum age at which children may secure total exemption from attendance at school; (*b*) the optional powers granted to Local Educational Authorities to extend the school-leaving age to fifteen; (*c*) the abolition of half time for children under thirteen; (*d*) the restriction on street trading; (*e*) the regulation of the employment of children in workshops and factories.

(2) That this Council is of the opinion that the Clause in the Bill respecting attendance at Continuation schools for children under sixteen years of age should be compulsory and not permissive at the discretion of the Local Authority; and that the attendance at continuation classes should be during the day time.

(3) That this Council urges the Government to place this Bill on the Statute Book without loss of time.

The Acting Teachers' Examination.

On June 11 the President of the Board of Education received a deputation from the Teachers' Registration Council with reference to the resolution passed by the Council in favour of the abolition of the Acting Teachers' Examination. The deputation consisted of the Right Hon. Arthur Acland (Chairman of the Council), the Very Rev. T. B. Strong, Sir Henry Miers, Mr. G. Sharples, Miss Cleghorn, Mr. F. Storr, Miss E. R. Murray, Lady Campbell, and Mr. P. Abbott, with Mr. F. Roscoe, Secretary to the Council. The proposal of the Council was that the Board should now fix a date, some years hence, after which the Acting Teachers' Examination should be abolished.

In reply the President said that he was fully aware of the disadvantages of the Acting Teachers' Examination and appreciated the desirability of terminating it at some future date. He also expressed his entire sympathy with the objects of the Teachers' Registration Council and their desire to promote in every possible way the effective training of teachers in all branches of the profession. He had, however, to look at the question from many points of view, and at the present moment he had especially to consider it in relation to the very serious problems which are caused by the dearth of entrants to the branch of the profession concerned with elementary schools. He was bound to consider what would be the effect of the abolition of the examination on the minds of

possible entrants to the profession or their parents, as well as on the interests of the uncertificated teachers in the profession who were anxious to qualify themselves as certificated teachers and improve their position. He did not feel able to commit himself at the moment as to any precise date for the termination of the Acting Teachers' Examination, but he threw out a suggestion that some alternative method might be introduced by which teachers entering the profession through the uncertificated grade might be enabled, after a substantial period of service, to obtain certificates otherwise than by a two years' course in a training college. The President expressed his opinion that, as far as his information went, he had reason to believe that poverty often placed an obstacle in the way of qualification through the ordinary channel of the training colleges. Not only were some candidates for the profession unable to provide the necessary fees, but they were also unable to forgo the earning of salary for so long a period. He was, however, considering the whole question from all points of view; his mind was moving in the same direction as theirs, and he would instruct his officers to go further into the matter with representatives of the Council, and especially those concerned with elementary schools.

Alexandra College, Dublin.

Those of our readers who follow with interest Irish educational subjects will learn with deep regret of the resignation of Miss C. P. Tremain, B.A., from her post as Head of the Department for Training Secondary Teachers at Alexandra College. Her work in training students for school work has been attended with signal success, and at the present time about a hundred teachers who have passed through the Alexandra College Training Department are filling responsible posts in England, Ireland, and the Colonies. Her loss will be felt not only in the College, but also in the whole field of Irish education, in the problems of which Miss Tremain has taken so keen and practical an interest. The work she has done as organizer of Women's Branches of the Association of Secondary Teachers (Ireland) has formed no small contribution to the effort for bettering existing educational conditions in our secondary schools. Miss Tremain is not completely severing her connexion with Dublin, as she will still hold the post, to which she was appointed in 1906, as Examiner in the University of Dublin of women candidates for the Secondary Teachers' Diploma.

London University.

The retirement is announced of Mr. H. Chapman Jones, who has been on the staff of the Imperial College of Science and Technology for thirty-nine years. The following appointments are gazetted:—Prof. E. G. Coker, to the University Chair of Civil and Mechanical Engineering at University College, in place of Prof. H. H. Jeffcott, resigned; Dr. Frank Horton, to the University Chair of Physics at the Royal Holloway College; Prof. Herbert Jackson, to be Head of Chemical Department, with title of Daniell Professor of Chemistry in place of Prof. T. Millar Thomson, who resigns at end of present season.

Association of Technical Institutes.

The Eighth Annual Conference of the Association of Technical Institutes was held in Liverpool last month. The President, Mr. P. Abbott, delivered a striking address, in the course of which he said:—

There can be no reasonable doubt, I submit, that our system promotes the development of the idle loafer, the parasitical unemployable, who go to fill our workhouses and our jails. In 1912 Local Authorities in England and Wales spent £17,250,000 on the administration of the Poor Law; the nation spent £750,000 on the maintenance of jails, while further enormous amounts were distributed by private charity in the relief of the poor. I would urge that a great amount of this expenditure is preventable; it can be partially avoided by preventing as far as possible the development of the loafer, by imposing upon all an appropriate vocational training, by ensuring that even the blind-alley worker shall have other resources when the time arrives for him to change his occupation. Any expenditure of public money which will do this is a productive expenditure, and will ensure a good return to the community. By spending a few extra millions on the training of the adolescent we shall ultimately diminish our expenditure on the relief of the destitute, while adding considerably to the wealth and happiness of the nation.

The following resolution was also unanimously adopted:—"This Conference urges the desirability of compulsory attendance for further education up to the age of eighteen, and for a period of not less than six hours per week, and is of the opinion that adequate facilities should be given by the employer."

New Head Master of Repton School.

The Rev. Geoffrey Francis Fisher, at a meeting of the Governors of Sir John Port's charity, was appointed Head Master of Repton, in succession to the Rev. W. Temple. Mr. Fisher is twenty-seven years of age. He entered Marlborough College in 1901 as a foundation scholar, and in 1906 he went to Oxford University, having won an open scholarship at Exeter College. At Oxford he gained First Class Honours in Moderations, First Class Lit. Hum., and First Class in Theology. He returned to Marlborough as assistant master three years ago. He was ordained in 1912.

University of London Club.

At the Statutory General Meeting of the University of London Club, held at the University on Wednesday, June 10, Lord Rosebery, Chancellor of the University, was elected President of the Club, and the following were elected Vice-Presidents:—Sir Thomas Barlow, Sir Robert Blair, Sir John Rose Bradford, Dr. Sophie Bryant, Sir Edward H. Busk, Mr. Clifford B. Edgar, Lord Emmott, Sir Rickman J. Godlee, Sir Alfred Pearce Gould, Sir W. P. Herringham, Prof. M. J. M. Hill, Sir Alfred Hopkinson, Sir Joseph Larmor, Sir Oliver Lodge, Sir Philip Magnus, Sir Henry A. Miers, Lord Moulton, Sir William Ramsay, Sir Henry E. Roscoe, Sir William A. Tilden, Prof. H. H. Turner, and the Right Hon. T. McKinnon Wood. The Committee reported that 910 original members of the Club had been elected, 6 applications being still under consideration. The 910 original members include 554 town members and 356 country members—709 men and 201 women. The principal professions represented are: teachers (including 150 teachers of the University), 420; doctors and surgeons, 135; Civil Servants, 66; lawyers, 64; ministers of religion, 53; engineers, 27. The following have been elected honorary members of the Club:—Right Hon. A. H. D. Acland, Right Hon. A. J. Balfour, Right Hon. Viscount Bryce of Dechmount, Sir William Crookes, and the Right Hon. Viscount Haldane of Cloan. The Committee further reported that Mr. T. Ll. Humberstone had been appointed the first Secretary of the Club; and that it was hoped that the Club House at 19 and 21 Gower Street would be open in July or soon afterwards. After the reception of the Report of the Committee, a silver salver was presented to the Club by representives of the United Faculties and Graduates Club "on the long-desired occasion of the opening of a University Club House."

London University Site.

At the Meeting of the Senate of the London University held on June 17 last, the Vice-Chancellor communicated the following letter, written by Mr. Bonham Carter, Secretary to the Prime Minister, to the Chancellor of the University (Lord Rosebery):—"The Prime Minister desires me to thank you for your letter with regard to the London University site, and to say in reply that the Government cannot contemplate the diversion of Somerset House from its present purposes. Mr. Pease has addressed a letter to Sir George Murray, who is Chairman of the Departmental Committee, informing him of this, and I enclose a copy of it." The Senate at the same meeting passed a resolution as follows:—"That the Vice-Chancellor be requested to inform His Majesty's Government that the Senate, having considered various sites which have been suggested for the head-quarters of the University, are of opinion that it is undesirable to proceed further with such consideration unless and until H.M. Treasury intimate their willingness to provide accommodation more suitable in situation, more convenient in character, and on terms not less advantageous as regards

tenure, &c., than those attaching to the present occupation at South Kensington."

Association of Assistant Masters.

The Bristol Meeting will be memorable in the annals of the Association of Assistant Masters, because it definitely sanctioned the establishment of a much-needed Emergency Fund for maintaining members of the I.A.A.M., "in cases of unjust dismissal during negotiations and pending new appointments." The establishment of this fund is now an accomplished fact. The control is left in the hands of the Executive Committee, which can be trusted to see that any sustentation granted shall not take the form of a life annuity. The fund will ensure the individual against loss; it cannot be made the source of continuous profit to any man. Nor will it be in any sense a Strike Fund. The proposal that it should be used to "fight cases locally," to use the somewhat unfortunate phrase employed, brought up visions of brass bands and processions with banners, much to the perturbation of mind of many present. That there may be the need of judicious local action, involving the expenditure of money, nobody can deny. It may be necessary even to promote Parliamentary action. Emergencies may arise in a hundred different ways, which may mean more than the bare sustentation of an aggrieved member—emergencies which could not be met by legal action—and a consequent recourse to the Legal Fund.—*A.M.A.*

The Court of Governors of Sheffield University have decided, with one dissentient, that Latin should no longer be a compulsory matriculation subject for students working for the medical degree.

The Responsions statute amending the list of subjects to be taken and putting the examination under the delegates for the examination of schools has been rejected in Congregation at Oxford by a majority of 37.

THE HEAD MISTRESSES' CONFERENCE.

By Miss Burstall.

At the close of the Conference on Saturday, June 13, the speaker who moved the vote of thanks to the University quoted from Macaulay's famous third chapter a reference to the renown of Bristol's hospitality as far back as the days of Charles II—the "tables loaded with good cheer," "the splendour of the city," "the rich beverage made of the best Spanish wine, and celebrated over the whole kingdom as 'Bristol milk.'" Only Macaulay's pen could do justice to the delightful conditions of the Bristol A.H.M. Conference—the sunshine and soft western air, the stately stone buildings set in verdant gardens, the beauty of great trees everywhere, the splendid and kindly hospitality, the smooth and easy running of an elaborate organization for the convenience and comfort of the Conference and its members, the sense of prosperity and cheerfulness, and welcoming sympathy as pervasive as the June light and the fresh wind.

The meetings were held at the Redland High School. Its fine terrace and grounds, with a five-hundred-years-old cedar, its spacious Georgian rooms, and its lofty hall in white and green, made a charming abode for a summer Conference. At 2.30 on June 12 the proceedings opened. Miss Shekleton, speaking as hostess for herself and for the Head Mistresses of Clifton, Red Maids, Colston, and the Clergy Daughters' School, who were associated with her, welcomed the Conference. She also recalled the strong desire of the late Miss Cocks (whom many of the older head mistresses knew as a valuable member of the Executive) that the Association should come to Redland. The President, Miss Robertson, of Christ's Hospital, Hertford, responded, and formal business began, of which there was a considerable mass, reports of Committees and representatives, including that of Miss Douglas (Salisbury) on the Teachers' Registration Council. Miss Gadesden (Blackheath) proposed a resolution on superannuation, arising from the action of the Federal Council in the matter of pensions for secondary teachers. The reports of sub-committees showed the extent of the Association's work, dealing as they did, not only with educational administration, examinations, and curricula, but with the education of women in India and the East, art, members and associates overseas and openings for girls and women. On the report of this last, whose chairman is Miss Oldham (Streatham), arose the most vivid discussion of the day. Resolutions on the Report of the Royal Commission on the Civil Service stood on the agenda as follows:—

1. That this Conference regrets the decision of the Royal Commission on the Civil Service to recommend (*a*) the exclusion of women from the competition for higher posts (Class 1 examination); (*b*) the maintenance of the hard-and-fast rules as to (i) compulsory retirement in all cases on marriage, (ii) the segregation of women employed in Government Departments, (iii) rigid differentiation between the classes of women typists and women clerks.

2. The Conference also dissents from the statement that women are inferior to men in (*a*) power of sustained work, (*b*) adaptability to varying conditions of service, (*c*) continuity of service, save in so far as compulsory retirement on marriage (affecting only 3 per cent. of Civil Service women annually) renders continuity of service impossible.

Miss Oldham, in a clear, concise, and yet exhaustive speech, moved these, and Miss Burstall (Manchester) seconded, in the absence of Mrs. Bryant (North London Collegiate). They gave rise to some constructive criticism from Miss Faithfull (Cheltenham), Miss Hanbidge (Central Foundation, E.C.), Miss Gray (St. Paul's), and others, Miss Knox (Toronto) giving some apposite illustrations from Canadian experience. The first resolution was adopted, but the form of the second was not satisfactory to the majority of those present, and a motion to delete it was carried by a substantial majority, many members expecting that an alternative resolution would immediately be proposed. No one at the moment was prepared to do this, and the Conference went on to the next item, and finished the afternoon by attending a garden party in the Redland grounds given by the Council and Head Mistresses. Evensong at St. Mary Redcliffe followed with a special address, and at 8.30 a Reception at the University gave delightful opportunities for meeting friends and making acquaintance with the professorial staff and other distinguished citizens. The Conversazione was extremely well done, the science exhibits being full of interest and novelty to many of the visitors. It was hard to drag oneself away, but an early bedtime was indicated by the early start of the Saturday morning's proceedings—9.45 a.m. This was a private session, dealing with some moral problems in education, papers being read on "The Duty and Discipline Movement," by Miss Kennett (The Perse School, Cambridge); "Home and School Training during Adolescence," by Miss F. L. Ghey (St. Mary's Hall, Kemp Town).

When the press was at last admitted after the closure of this section, it found the Conference dealing with the misapprehension in some newspapers about the action of the previous day in deleting the second resolution. Miss Gadesden said it would be a disaster if it were generally believed that a Conference of educated women had such a low opinion of their own powers of sustained work and adaptability to environment as might be suggested by the decision of Friday. Leave was given to introduce a new form, and, later in the morning, a long resolution was brought forward by Miss Oldham. It stated that there are not sufficient data present for any comparison between the work of men and women, inasmuch as many women had hitherto not had an opportunity of promotion in the Civil Service to posts of responsibility. The resolution was received with applause and carried *nem. con.*

Miss Robertson then delivered her presidential address, reviewing the educational events of the year, taking as her theme unity among teachers. Her wise and weighty words, delivered with quiet dignity and a touch of humour here and there, were received with becoming respect and attention, and she struck a stately note in conclusion, saying that "unity of purpose—the single determination to accomplish a great and many-sided task—will yet form a bond among those whose conception of education grows and widens till it embraces all the forces that teach—as Dante said—how man may make himself eternal; and who are resolved, since teachers they are, that no form or mode of teaching shall be regarded as alien to their common end."

An interesting discussion followed on the shortage of

teachers for elementary schools, opened by Miss Wood (Burnley) in a vigorous and characteristic address. Some of her points were also emphasized in the report of the special Friday morning meeting of members serving on Education Committees and heads of Local Authorities. The main importance of this sectional meeting rose out of a paper given to it by Miss Waters (Bromley) on the working hours of teachers in the municipal or county secondary schools. Miss Douglas, the ex-President, who had taken the chair at this meeting, asked the Conference to pass a resolution to the effect that in such schools, where there is in general a compulsory afternoon session, the proportion of the staff to the pupils should be at least one to seventeen. This was carried.

The main business of Saturday afternoon was more purely educational, and it had the same characteristics of actuality, freshness, and vigorous discussion which the subjects of an administrative type so markedly developed. Miss Purdie (Sydenham) read a paper on the influence of the direct method of the teaching of language. The trend of the discussion seemed to show that caution was desirable and that the value of reading widely in French and German ought not to be ignored. The second subject was indeed a burning one, Homework and Over-pressure, Miss Bancroft (Chelmsford) opening with a very valuable paper which might well be printed and circulated both among teachers and parents. In it, as in the discussion, the danger of overwork, due to the ambition of parents and pupils, was emphasized. After formal, but very sincere, votes of thanks, the Conference closed with another afternoon party (just as delightful as that of Friday afternoon) at the University Hostel, Clifton Hill House. Miss Staveley, the Warden, received the guests in a very beautiful garden, where two huge tulip trees were in flower, as well as roses and other more ordinary shrubs. The house itself, which once belonged to John Addington Symonds, and still contains some beautiful internal decoration, is built on a steep slope. Its terrace, stairs, and creeper-covered walls formed a fine background for the rich colours—purple, brown, deep blue, and pinkish grey—which predominated in the dresses, here and there relieved by a picturesque arrangement in black and white, a touch of brilliant orange, and the cream, cerise, and turquoise worn by the younger ladies. The days of dowdy school mistresses have indeed departed.

It is difficult to estimate the number attending the Conference, but taken altogether the attendance was very large—about 250. What was even more striking was the representative character of those present, every part of the country having sent delegates. There was a strong Northern contingent, both from Lancashire and Yorkshire; the Midlands, London, and the West had obviously found Bristol a convenient centre; but we were struck with the number from Kent, Surrey, and Sussex, and even from East Anglia. The peculiar geographical position of Bristol, which made it an important commercial centre even in Norman times, was clearly in part responsible for this valuable intermingling of the members of the A.H.M. from all over the country, while a happy accident made it possible for the Conference also to welcome Miss Raymond (La Martinière, Calcutta), one of the Correspondents of the Association, and Miss Knox (Havergal College, Toronto), a Correspondent elect.

REGISTRATION.*

By Miss Robertson.

The establishment of the Teachers' Registration Council marks an era in English educational history. It is not only that it will give us, before long, a Register of men and women definitely acknowledged as qualified to teach, but, that the making of the Register has been entrusted to teachers themselves, and that we may hope to see evolving a self-governing profession whose extraordinary diversity should act as a wholesome antidote to professional narrowness. Can the profession rise to its opportunity? Is there a desire for unity and co-operation, or is the idea of unity a mere delusion, to be laid aside save on ceremonial occasions, when conventional politeness demands that courteous words of little meaning should be used to conceal our divisions?

Fundamentally, our reply will depend on the view taken of the task before us. Not a hundred years ago, English education was mainly an education of groups, in the culture traditionally desired within the group. So far as it was in the public eye at all it consisted of the training given to boys in the ancient public schools; and of the very simple elementary education undertaken by private or semi-private persons, landowners, clergy, and the like, for the benefit of tenants or parishioners. The State recognized no obligation in the matter: the great bulk of the nation either provided or neglected to provide its own education on entirely individual lines. Much excellent work was done—possibly we shall rarely touch the level reached by some early pathfinders—but the private practitioner, good, bad, or indifferent was uncontrolled, there was no Board of Education to curtail his unchartered freedom, no public opinion to attribute all national shortcomings to schools and schoolmasters (or schoolmistresses).

Much water has run under the bridge since these days, and gradually the question has shaped itself as Mr. Cholmeley puts it in an arresting phrase: "What are we going to do with the children of the country while they are growing up?" This question makes insistent and ever more urgent appeal to statesmen, to politicians, to social workers of every kind. For all teachers it is literally their vocation—their call. Our task is nothing less than the training and education of the whole nation, from the poorest to the richest, from the ablest to the mentally deficient. And to state this is surely to state that unity among teachers is not only possible but essential, not only desirable but a goal to be kept steadily before our determined enthusiasm.

In this work of national education it is obvious that we start late, and many of our difficulties arise from the haste inseparable from previous sluggishness. (I do not think that it is realized how severe is the demand made by brainwork on a generation whose forbears have used their minds but little). The Scotch in three hundred years have at least developed a respect for education and a real grasp of its meaning which is still rare in England. Germany learnt much a hundred years ago in a school of bitter adversity. We have not yet a clear conception of the problem, and the field is partly covered—I will not for one moment say cumbered—by vigorous and various growths innocent of any "town planning" scheme and not to be replaced by any cut-and-dried scheme without grievous loss.

The education of the middle class, still in the present day meagre and uneven, was not systematically attempted until the close of the nineteenth century. This, a disaster in itself, is the more disastrous in that, poor and immature as secondary education has been, it has moulded the aim and the progress of elementary education. The educational ladder of which we hear so much has been set up from the primary to the secondary school while the latter is still incomplete, the landing place is obscured by dust and scaffolding, very shaky and uncertain. Elementary education itself has been planned from the outside without considered or philosophic basis, without distinct purpose. The mass of the people have been strangely silent with regard to it. Surely it is one of the most hopeful signs of the times that in the Workers' Educational Association we see at last an instrument slowly forging itself which should in the near future bring to bear on the training given in the primary schools the instructed opinion of the classes most nearly acquainted with their working and their output.

But, whatever the strength or weakness of our elementary schools, one grave fact cuts at the root of their service to the nation. It is estimated that three-quarters of the children educated therein receive no further education whatever after the age of fourteen. That is, in the most crucial years of

* The Presidential Address delivered at the fortieth Annual Conference of the Association of Head Mistresses.

growth and development, just when independence of parental control is most frequently desired and asserted—external guidance and discipline are abruptly withdrawn. We must grapple with this problem before we can call our education in any sense national. I do not believe that it will be solved along any one line, certainly not by the mere multiplication of secondary schools of any pattern yet evolved, nor by the indiscriminate transfer of boys and girls to existing schools. We must recognize—in all humility—that many growing boys and girls who are capable of making useful citizens would be—are—frankly bored by most of the existing forms of higher education. Our ideals of scholarship make no appeal to them—at present. Are they, therefore, incapable of education? And is the work and welfare of the modern world to fall into the hands of men and women whose physical and intellectual training ended with their childhood? It is a question which vitally concerns our modern world and one which every teacher should aspire to solve.

I will not dwell on all the obstacles which have made a national system impossible so far. The most important for my present argument has not always been recognized—namely, the lack of unity among teachers. Their organization, their outlook, their policy have been divergent, often antagonistic. There are explanations of this phenomenon into which I will not at present enter, save to say that it has its roots in facts of national life and temper against which it is easy to rail, but not at all easy to operate successfully. For the moment all I would do is to state the fact as a fact.

Progress is obstructed by disagreement, open and unexpressed, among those who claim to be experts. Yet there are signs that we are moving towards greater unity, though in saying so I do not for one moment believe that differences are likely to disappear. I, for one, do not believe in an artificial unity induced by suppressing peculiarities or by curtailing free development. If all teachers *could* be made to think alike, how dull and worthless their thoughts would be! If it be asked, as it has been often asked, what common ground has the master of an East-end elementary school with the Head of an ancient foundation, or the teacher of gymnastics with the lecturer on the classics? I would answer: This, at least—that all alike are helping to fashion the citizen of the future, and that the narrow conception of teaching as the purely intellectual training of a group must give way to a wider and more catholic view of the training of whole men in a whole nation and of teachers as instruments in this training, whether they work on the basic development of the intellect or on those special forms of culture which have been in the past, but surely should not be in future, too often divorced from intellectual training.

And if a further question be asked—a question not far from the minds of many, namely, why should we desire unity among teachers? how far will it help us in our daily work? I would point to the extraordinary diversity and inequality now existing and to the absence in whole groups of schools of the very elements which other schools possess as a matter of course. Take, for instance, the public schools with their traditions of scholarship, their disciplined *esprit de corps;* the technical and engineering schools with their eager interest in new forces and modern developments; the elementary schools with their catholic welcome to all comers, and their amazing success in imparting some measure of knowledge and training to *all;* our girls' schools with their ideals of trained intellect, of refinement, of aspiration after beauty in literature, in art, in daily life. We can all think proudly of some schools at least where each of these ideals finds full expression. Why should they not be more widely shared and combined? Why should our faith in human nature be so weak that we doubt the possibility of these noble plants rooting side by side? Why should we expect, for instance, that interest in the things of the mind, in art, in the humanities, should be for ever arbitrarily confined to a small section of the nation or the race? Why not say with Browning:

> I like to know a butcher paints,
> A baker rhymes for his pursuit . . .

or ask with Wordsworth why millions should not reach "the worth and dignity of individual man, . . . that glorious creature" now to be found "one only in ten thousand."

If some teachers have succeeded, under most untoward circumstances, in passing on to their scholars their own best gifts; if schools in which the conditions a hundred years ago can only be described as barbaric are now enlightened, if not learned abodes, then further progress is not only possible but almost inevitable, provided that teachers are equal—in numbers, in faith, and in aspiration—to their task. If teachers fail—whether in quantity or in quality or in both—it will not be *wholly* because of poor salaries or hard conditions—men and women have thriven on both before now—but for want of vision, of faith and hope. And our schools will be doubly condemned if they send forth boys and girls with no desire to pass on to others what they themselves have received—no desire to be entrusted with work for the nation and the race. What social service can rank higher than that of training the citizens of the future? If the task of the teacher is belittled it is partly because teachers themselves fail to realize the full scope of their task and still more because they do not work as a "band of brothers." As tunnel workers hail their fellows working on the other side in a contrary direction yet for the same end, so teachers of every kind should recognize and respect each other's work. Thus unity is no mere phrase but a practical necessity—a condition of further and more hopeful progress.

There are certain influences making for greater unity among teachers at the present time.

1. The increasing opportunities for collaboration and consultation due to the Act of 1902. On Education Committees or Sub-Committees teachers of all kinds have been co-opted together, have heard each other's views, have joined hands in laying down conditions and in advising laymen, and have learnt much from each other.

2. The system of scholarships, particularly those for bursars and student-teachers, has secured a steady stream of scholars passing from public elementary schools to secondary schools with a "return flow" into elementary schools of young teachers whose training and experience has been dual. It is most important to maintain this interchange between the schools (we shall discuss this subject later), yet so to regulate it that the intellectual standard in secondary schools shall be maintained. There is a real risk lest nominal promotion should bring no substantial and permanent intellectual gain.

3. The Board of Education and especially the Inspecting Staff. Even though elementary and secondary Inspectors are differentiated they are in constant touch with one another and their unifying influence can hardly be over-rated. We have sometimes had reason to dread the administrative and still more the political action of the Board as tending to undue uniformity and the production of such tabular results as may be most easily presented in a Parliamentary statement; but I think most Heads, both men and women, would bear grateful testimony, as I do, to the inspiriting and sympathetic influence of the Inspectors, local and central, on the work and policy of secondary schools; and I would further express my special gratitude for that encouragement of the teaching of English which may serve the cause of unity by enabling scholars in every kind of school to use our common language with real intelligence.

4. And lastly, a new influence, making, as we hope, for ever closer unity and co-operation, comes in the Registration Council and the Register. It is much that a body of teachers acknowledged as representative should be working together, under the sanction of the State, for professional purposes, it is more that they should have agreed unanimously on conditions which shall admit to the profession in future. But I look upon the Registration Council and the Register as the finest weapon for the education of teachers themselves—and I hope we are in sight of better understanding, more goodwill in co-operation, more readiness to learn from and about each other than we have hitherto known.

I do not for a moment suggest that the millennium has

arrived. Much more remains to be done. What do most of us know, *e.g.*, about the organization of elementary and technical schools? How far are students in training (and the training of teachers is one of the urgent questions of the hour), encouraged to study "what is and what might be" in our national education? How far do we as secondary teachers realize the difficulties created in the upper standards of elementary schools by the continued exodus of the brighter and more promising scholars into secondary and technical schools?

These and other obstacles to unity still remain, and neither the Registration Council nor any other machinery will charm them away. Unity in the twentieth century cannot possibly mean uniformity. That extraordinary complex—the modern nation—cannot be educated according to any one formula. But unity of purpose—the single determination to accomplish a great and many-sided task—will yet form a bond among those whose conception of education grows and widens till it embraces all the forces that teach—as Dante said—how man may make himself eternal—and who are resolved, since teachers they are, that no form or mode of teaching shall be regarded as alien to their common end.

THE ASSOCIATION OF HEAD MISTRESSES.

RESOLUTIONS PASSED AT THE ANNUAL CONFERENCES, JUNE 12 AND 13, 1914.

PENSIONS.

"That this Conference heartily welcomes the Report of the Departmental Committee (Cd. 7,365) on the Superannuation of Teachers, and is of opinion that the main recommendations of that report, if adopted, will prove of the greatest importance in the satisfactory organization of a national system of education. It cordially approves of the principle laid down in the report that a system of pensions and disablement allowances should be established, as laid down in the report, for full-time teachers in State-aided secondary and technical schools, and urges His Majesty's Government not to allow any obstacle whatever to prevent the immediate carrying into administrative effect of the scheme recommended by the Departmental Committee." (Carried, with two dissenting votes.)

THE REPORT OF THE ROYAL COMMISSION ON THE CIVIL SERVICE.

(1) "That this Conference regrets the decision of the Royal Commission on the Civil Service to recommend (*a*) the exclusion of women from the competition for higher posts (Class I examination); (*b*) the maintenance of the hard and fast rules as to (i) compulsory retirement in all cases on marriage, (ii) the segregation of women employed in Government Departments, (iii) rigid differentiation between the classes of women typists and women clerks." (Carried, with seventeen dissenting votes.)

(2) "That this Conference desires to emphasize the fact that there are not sufficient data at present for any comparison between the work of men and women, inasmuch as many able women have hitherto not had an opportunity of promotion to posts of responsibility, and, with regard to the Civil Service in particular, the monotonous and mechanical type of work, without prospect of change, hitherto allotted to women only, impairs general usefulness and gives no opportunity for showing adaptability to varying types of service."

(3) "It desires to endorse the view expressed by the Commissioners in the reservations to Chapter X, Paragraph 19, which runs as follows:—'We believe that efficiency in clerical, as in other forms of labour depends in part upon the food, housing, recreation, &c., made possible by the salary paid. For this reason we think that no fair inference can be drawn as to the efficiency of the two sexes from a comparison between the work of the existing women clerks and that of male clerks enjoying much larger salaries. And we do not think that the evidence before us (in so far as it is based upon actual experience, and not *a priori* consideration) justifies the statement, even with regard to existing facts, that "in adaptability to varying service conditions the advantage lies with men."'" (Carried without dissentient vote.)

HOURS OF WORK.

"That in schools with a regular afternoon session there should be at least one assistant mistress to every seventeen girls, and that in small schools, or schools working under special conditions, a larger staff should be allowed." (Carried without dissent.)

THE LIGHTER SIDE OF PEDAGOGY.

THE HOWLER.

AFTER all the definitions and explanations which the recent Prize Competition has evoked, one feels that there is yet more to be said and thought about. For the Howler is a strange creature. His very name is a puzzle. You may derive it *ex opere operato*, from the howls of laughter he produces; but surely it is rather himself that howls, as being incisive, strident, one that "leaps to the ears," as our French neighbours might say. He is no offspring of a cautious or sluggish mind; he comes not from the scholar who will hand you his translation discontinuous and full of gaps, meaningless as the legs of an animal drawn without body and head; the engenderer of a Howler will have something complete—a satyr, perhaps, rather than a man; a fair form which *desinit in piscem*, but it will not want shape or reality. The teacher may laugh or sigh at the production, or at the reproduction of his own teaching; but "there's method in it"; it is a work of mind, of mind which thrusts doubt aside, o'erleaps its own ignorance, and determines to make something of a figure in reaching earth. Often a touch or two will do away all incongruity, and set him straight; "O the little change, and how shrewdly *right!*"

Thus, when asked, "What is the meaning of the word 'baptize'?" a pupil wrote: "To baptize does not mean to sprinkle with water, or even to dip in the water; it means 'to drown.' In omitting this part of the ceremony we lose much of the efficacy of the rite." (Apparently the master was "over nice," and too subtle for his class. And was he not prone to be rather painfully didactic?)

Here, again, is a spirited rendering from the Latin, not unworthy of commendation if we neglect the context: "Pulchrumque mori succurrit in armis." "And he rescues the beautiful creature, according to custom, in arms" ("Aeneid," II, 317). Surely this translator has caught the spirit of Virgil! Or is he fired by a reminiscence of Oliver Wendell Holmes?

> When the pale heroine, all too faint for speech,
> Her cheeks as bloodless as a brandied peach,
> Sinks to the ground beneath the (canvas) trees,
> "Help me, kyind Heavens!" and falls upon her knees;
> See to her aid avenging valour fly.
> "Unhand her, villain! T-r-raitor, yield or die!"

Sad that *ŏ* for *ō* and *i* for *e* should bring a soaring youth to such disaster! But what a warning to *us* to remember pronunciation and prosody!

I recall another translation which may be useful to those who affect to study the sources of error:

> Passer, deliciae meae puellae,
> Quicum ludere . . . .

"I am permitted, my darling young ladies, to play with whom I please." The statement here put into the mouth of Catullus is at least not inconsistent with his character. *Passer* does look like a passive, and *quicum* is not so *very* different from *quocumlibet*. But there was more that followed, and this our translator, a too "particular fellow," omitted to take into consideration. Moral: Context is the first thing, context is the second thing, context is everything. Explain by the context, insist on the context.

Another rendering, vigorous but unsound, is by one who had apparently been reading some criticism of the comedies of the Restoration period: "Delicta maiorum immeritus lues" (Horace, Odes, III, 6). "The remains of our ancestors are dishonourable filth." I can find "dishonourable" in "unworthy," and, for the rest, change three letters only, and there we are! Yet how far away! So fatal, the teacher will proclaim, is inaccuracy. As in the pithy statement, written in lighthearted response to "Write all you know about St. Matthew," "St. Matthew was a republican."

But there are minds that seem to find no difficulty in harbouring beliefs that are mutually contradictory—as here: "He fell to the ground, and screamed and struggled *like one dead.*" What is to be made of this? Is it a proleptic use of the two verbs? Or is "dead" a mere slip for "dying"? What sort of a scene was in the writer's mind?

A psychological explanation of blunders has yet to be

written. "All knowledge is a perception of likeness or unlikeness." Granted: but why is a slight unlikeness in some things perceived immediately, while other very dissimilar things are confused? A child meeting a horse does not say, "Here comes a mule," though its idea of a mule may be very vague. Yet it can think that "Lyons" means a restaurant, while its conception of the town of Lyons is clear enough. An active and a passive form may be unlike to eye and ear; yet a quite intelligent youngster will take one for the other without a qualm. You may say that animals are more interesting than verbs; but so common an object as a cart-horse is not specially interesting, nor does a child seem "so careful of the type." Or it may be said that in teaching a synthetic language we overload the youthful mind with new concepts, which cannot all be sufficiently apprehended to be distinguished. Perhaps; but why then is a singular never or seldom mistaken for a plural?

To return to howlers. The most howlerish show ingenuity and a certain audacity. We have all made some in our time, and we may be proud of them. Pages of dull, correct translation shrink in value before the brilliant renderings I have quoted. "Ridenda poemata malo." I will add one more, genuine like the rest, which I could almost have wished to perpetrate myself: "Sordebat suis, ut plerumque domestica" (which means, of course, that in his own set he was of small account, as home products mostly are). But a student, disregarding the place of the comma, produced: "He lived in a state of squalor, such as is usual in a pigsty."

THE DEGREE OF MASTER IN EDUCATION.

[Communicated.]

While some American Universities regard education as a distinct branch of learning and grant a special degree to students who have successfully completed a course of study in the subject, English Universities have so far classed education as one subject of the Faculty of Arts, or in Manchester as a subject belonging to the Faculties of Arts and Science. A step forward was taken when an M.A. in Education was instituted by some Universities, to be awarded to graduates who showed an adequate knowledge of educational theory and practice, and now we have a University establishing a special Faculty of Education and giving a degree distinct from the M.A. or the M.Sc. This step has recently been taken at Manchester, and the result will be watched with interest.

The regulations which have recently been issued provide that the degree may be obtained by Manchester graduates who have also gained the University Teacher's Diploma or Certificate in Education. Graduates of other Universities will be eligible if they have been awarded the Manchester Diploma or Certificate, but they must spend an additional year working under the supervision of the Faculty of Education. In the case of Manchester graduates, a Certificate or Diploma in Education granted by another University may be accepted in lieu of the Manchester Diploma. Candidates for the degree must furnish evidence of practical efficiency in some branch of educational work and must have had at least one year's practical experience subsequent to gaining the diploma or certificate. They must present a reasoned account of this experience and also a thesis on some educational subject.

This new degree of Master in Education ought to stimulate the systematic study of educational problems. A rapidly increasing number of teachers and educational administrators are taking a keen interest in the theories which underlie their work, and we may hope that not a few of the younger members of the profession will take advantage of the opportunities thus offered for obtaining help and guidance in their studies. The possession of a degree in education ought also to be recognized by authorities when making educational appointments as a sign that the holder has tried to prepare himself for his work. To what extent this will actually be the case the future alone can show, but at any rate the institution of the degree may be welcomed as an advance in the right direction.

THE KINEMA IN EDUCATION.

All-conquering invention, as you spread
  Your democratic tentacles afar,
And at the hour when youth should be abed,
  Entice its threepence with your Yankee star
  Eloping with a maid and motor-car,
    Jumping a chasm, planing through the air,
    (Featured by Kalem or by Pathé Frères);

Or, with a frowning, pantomimic sleuth
  Tracking the paths of Continental fraud,
Evoke poetic justice for the truth;
  Or rouse suburban sportsmen to applaud
  The frenzied rides of Arizona Maud;
    Still further conquest, then, expands your rule—
    The private doings of the Molecule!

Yours, as a right, Biology hath been—
  Have we not all, with shudders, seen at home
In oily wrigglings, on the flickering screen,
  'Mid phagocytes inimical, to roam
  The fascinating, bland Trypanosome?
    But that your glance is piercing deeper still
    Starts the imagination, stirs the will.

Shall not linguistics also have a show?
  Let fall a crumb to help us in our need!
A diphthong breaking up, an opening *o*;
  Two participles rampant, or agreed;
  The French subjunctive, captive, on a lead:
    Here be your future laurels, dare I say,
    My Gaumont, Vitagraph, and Essanay!

A. C. B.

PRIZE COMPETITION.

Prizes are offered each month for the best replies to the subject set. Competitors may, if they wish, adopt a *nom de guerre*, but the name and address of winners will be published. Competitions, written on one side of the paper only, should be addressed to the Editor of *The Educational Times*, 6 Claremont Gardens, Surbiton, and should reach him not later than the 15th of the month. As a rule competitions should be quite short, from 100 to 500 words.

The first prize will consist of half a guinea; the second prize of a year's free subscription to *The Educational Times*. It is within the discretion of the Editor to award more than one first prize, or more than one second prize. Cheques are paid on or about the quarter-day following publication.

Subject for July.

Which novel in the English language is best entitled from the nature of its contents to the epithet "The Teacher's Novel"? Give very *briefly the reasons for your choice.*

The response this month has been disappointingly small in the matter of quantity at any rate. This may be due to the fact that teachers so seldom make mistakes that there is really nothing to record. But again it may be because teachers dislike speaking about any mistakes they may have made. There is a further reason that suggests itself to us from the nature of the answers submitted. There appears to be a tendency to treat the matter more or less guilefully, and not to admit frankly that a mistake has been made. Teachers as a class are singularly unwilling to countenance anything in the shape of dishonesty in their dealings with a class. It is not maintained that teachers are more honest than other people of the same rank in life. But there does seem to be a special unwillingness to condone duplicity in dealing with a class. This feeling probably counted for something with those who might otherwise have competed.

Every teacher of experience knows that the younger the class the greater the need to maintain untarnished our reputation for infallibility. To the very little ones a mistake by the teacher has a paralysing effect. The universe totters to its fall if the teacher can be shown to have gone wrong. This consideration probably weighed with the competitor who said that with a very young class she would let the error stand. "Since my pupils always forget so readily what I want them to remember, the chances are that the error will very rapidly fade, and in the course of a few weeks it will be possible to put the matter right by a correct statement." This competitor is an optimist. Psychologically no doubt she is right in her estimate of the ease with which children forget. We have Felix Arnold's authority for the statement, "Remember that about half of the new matter presented is forgotten after the first half hour, two-thirds in nine hours, three-quarters after six days, and four-fifths after a month." But human nature is so perverse that after a month the misstatement by the teacher is almost certain to form a part of the fifth that remains in the memory of some of the youngsters, and the teacher may reckon upon her statement of the correct matter being met with the accusing treble: "But you said ——" It is unwise to rely upon human forgetfulness, unless when you wish your class to remember.

More hopeful is the daring plan of the competitor who suggests that the best way out of the difficulty is to mention to the class that you made a mistake yesterday—leaving it to be inferred that this was done intentionally—and now you are prepared to offer a prize to the pupil who first discovers what that mistake was. In the first place the moral obliquity of the suggestion of deliberate mistake-making does not commend this solution. It recalls too vividly the plan sometimes adopted by unscrupulous teachers who are shaky about their facts and inform the class that they are going to make a mistake, and that the class is to watch for and detect the mistake as soon as it is made. Such teachers take care to make some very slight mistake to keep up appearances; but their real motive is one of insurance against making any mistake that they themselves do not detect, but that lies open to the eyes of the head pupils. In the second place, this prize offer plan has not stood the test of actual experiment. In at least one case in which it was tried there was trouble about the awarding of the prize. There were three claimants — just claimants — and each of the three founded upon a different error. Instead of covering up one mistake the teacher exposed three.

Competitors have a singular unwillingness to mention specific mistakes. One gives an example of a generalization made about triangles that really applied only to certain kinds of triangles. The pupils had written down the generalization, so there was no hope of escaping detection. Accordingly, this teacher took the bull by the horns and gave the class next day several examples to work out, taking care that certain triangles were included that did not fit into the generalization. In this way the pupils themselves discovered, as part of their ordinary work, that the generalization was false, and the teacher left it to be inferred that this discovery was a part of the regular plan of studies. The moral question will emerge, but fortunately we are not here called upon to decide it.

It is likely that teachers overestimate the infallibility imputed to them by their pupils. Dr. Busby was probably wrong when he thought that he must keep on his hat in the joint presence of his schoolboys and the king. Without doubt the boys had not nearly so exalted an opinion of the Head Master as the Head Master supposed. Whatever was true in Dr. Busby's time, there is nowadays no need for the teacher to be greatly afraid that his pupils will overestimate him in any way. Of all the tags in their Latin grammar there is none to which they so cordially subscribe as to *humanum est errare*. With advanced classes the teacher may rest assured that he can admit an occasional error without any serious loss of prestige. The youngsters have already made such ample allowances for human error that an occasional exemplification only strengthens them in their convictions regarding the nature of things. The important point is that if an error has been made (and discovered) by the teacher, he must take the earliest opportunity of correcting it, if it is a matter of any importance. If it is a trifling matter it may well be allowed to correct itself. We cannot agree with a competitor who maintains that "the important thing is for the teacher not to be found out."

Will "Erratum" kindly send his or her name and address?

ASSOCIATION OF ASSISTANT MISTRESSES IN PUBLIC SECONDARY SCHOOLS.

The Annual Summer Meeting of the Association of Assistant Mistresses was held on Saturday, June 6, at the Wyggeston Grammar School for Girls at Leicester, by the kind permission of the Governors and of Miss Heron, the Head Mistress. In her cordial welcome to the members of the Association, Miss Heron referred to the time when she herself was one of them; she pointed out the numerous benefits to be gained from membership, and advised all assistant mistresses to take advantage of them.

After introductory remarks by the President, Miss E. Pearson (St. Leonard's School, St. Andrews), a paper was read by Miss C. L. Laurie (The Ladies' College, Cheltenham), giving an account of the Report of the Departmental Committee on the Superannuation of Teachers. She explained that the main recommendation of that Committee was based on the system of insurance which has been established in the Federated Universities, in addition to superannuation and disablement allowances to be provided by the State. If the scheme were to come into effect, then the mistress of the future in State-aided schools would be compelled to take out an insurance policy, the premium on which would be not less than £10 a year, and would be divided between employer and employed, not more than 5 per cent., however, being deducted from the teacher's salary. For every £20 increase of salary a further policy would be taken out with premium £2 a year, employer and teacher paying £1 each; and so on until the salary passed £500. What would happen then it was needless for her audience to trouble to consider! The policies would mature at sixty, and would be in the custody of the Governors of the school. In addition to this annuity, when the mistress reached the age of sixty-five she would receive a superannuation allowance from the State of £1 a year for each recorded year of service.

In the event of a permanent breakdown in health there would be a State disablement allowance of £1 a year for each complete year of service, with a minimum service of ten years. Supposing the teacher were to give up teaching before the age of sixty, she would still be able to have her full annuity at sixty if she herself were to pay the premiums; but if she did not wish to do so, then the policy would not be lost; it would be held in trust until the age of sixty, when she would receive an annuity which would be the surrender value of the policy at the age of her retirement. An exception would be made in the case of retirement for marriage, when the mistress would then receive the surrender value of her policy.

Miss Laurie reminded the Association that when the subject was under discussion in 1911 they passed a resolution in favour of fifty-five as the age at which it should be possible to draw pensions, and pointed out that if the age were to be fifty-five instead of sixty it would not only make the annuity about two-thirds of its value at sixty, but it would also take £5 a year off the State allowance. Another excellent point in the scheme was that it provided for the free passage of a teacher from one grant-earning school to another without any sacrifice of the provision for old age, and, moreover, the Committee contemplated the admission to the insurance system of schools not in receipt of the grant.

Miss Laurie said she was aware of some dissatisfaction with the scheme as regards existing teachers, but she reminded the meeting that existing teachers would certainly be better off under the scheme than without it, and though, when oppor-

tunity occurred she would plead for better terms for existing teachers, she considered it would be a matter for congratulation if future teachers were to be better off than ourselves, especially if we, by our work for improving the conditions of service, should have helped to bring it about. It was the purpose with which our Association was started by its founders.

In the discussion which followed, it was pointed out that in many secondary schools fifty-five was the retiring age. Miss Lees (Clapham High School) stated that statistics she possessed showed that in the older secondary schools by far the larger number of assistant mistresses retired before the age of fifty-five, and on January 31, 1912, out of 4,974 mistresses in the grant-earning secondary schools, only 60 were of the age of fifty-five and above, and in all probability most of the sixty were head mistresses. She felt sure that a very large number of mistresses would prefer to have an annuity at fifty-five, even though it were very much smaller than they would get if they continued teaching until they were sixty. She asked for a show of hands on this point, and apparently every hand went up in favour of a mistress being able to have the surrender value of her annuity at fifty-five if she so desired.

Miss Laurie finally put the following resolution, which was carried unanimously:—"That this Association heartily welcomes the Report of the Departmental Committee on the Superannuation of Teachers (Cd. 7365). It cordially approves the principle laid down in the Report that a system of pensions and disablement allowances should be established with the aid of the State for full-time teachers in State-aided secondary and technical schools, and urges His Majesty's Government to take such steps as are necessary to give effect to the scheme recommended by the Departmental Committee."

Miss Lees then reported on Registration and called attention to two changes in the conditions, namely the extension of the period during which the "alternative conditions" will be in force from December 31, 1918, to December 31, 1920, and the change of section 1 of the appendix so as to allow women teachers to register who pass a final examination at Oxford and Cambridge without having passed all the examinations required for a degree. She reminded those present of the great leaders of the profession who had already registered, obviously for the good of the profession and therefore for education generally, and she urged members of the A.A.M. to register without delay while it was still an act of grace, and before it became an act of necessity.

At the conclusion of the business meeting, members and their friends had the pleasure of listening to an inspiring lecture from Mr. Hartog, Academic Registrar of the University of London. The subject of his address was "Inspiration, Sincerity, and Imagination in English Composition." He laid great stress on *thought* in writing, insisting that the thinking hand was at least as important as the thinking tongue. He referred to those who write because they have thought, to those who think because they have to write, and to those who write without thinking. He distinguished between the "record" written for oneself, and the "message" written for others, and in this connexion he urged the teacher of English composition to make the pupil want to say something, something which she would consider worth knowing, and on which she had a right to have an opinion. There was to be no writing vaguely on lofty themes, but writing for a particular purpose for particular people. This would necessitate "order" of thought on a definite plan from a definite point of view, the imagination of real things and picturing of consequences. To write thus consistently would require continuity of attention, power of concentration, power of mental "accommodation," and if the teacher would make each pupil herself the judge of what she herself had done, then she would also be encouraging self-criticism and the cultivation of intellectual conscience. Much interest and entertainment were afforded by the various typical essays that Mr. Hartog read in illustration of his statements.

After hearty votes of thanks to Mr. Hartog for his lecture, and to Miss Heron and her staff for their very kind reception of the Association, the company were entertained to tea in the Large Hall, and were invited to inspect the various departments of the school, including the well equipped rooms for the teaching of domestic subjects and an interesting display of handwork in the studio.

THE GREEK PLAY AT BRADFIELD.

To all who are interested in Greek culture the triennial performance of a Greek play at Bradfield College is an event of importance. Here only, in England, can ancient tragedy be seen in the setting for which it was written and for which its technique is adapted. The open air and bright daylight restore that atmosphere of freshness which is so characteristic of Greek drama and so difficult to obtain in a performance on the modern stage. Moreover, all is in keeping; the harmony of colour, the grace of the Greek costume, the uncouth music, to which the chorus move about the altar of Dionysus, so transport one to the days of Athens' greatness that it is only the modern audience that brings one back to the realization of the twentieth century. The play chosen for this year was the "Alcestis," which has a simple plot. Apollo has prevailed upon the Fates to grant Admetus remission from death on condition that he finds a substitute. His wife Alcestis is willing to die for him when all others fail. Heracles arrives by chance and is entertained by Admetus, who conceals his grief. Learning the truth by accident, he goes forth and wrestles with Death and restores Alcestis to her husband. Clearly the weakness of the legend lies in the selfishness of Admetus, and Euripides, as usual, does not hesitate to point it out. In what is, perhaps, the finest scene of the play Pheres, the father of Admetus, stung by his son's taunts, roundly accuses him of cowardice. "Cunningly indeed has he found the secret of immortality if he can always persuade his wife of the hour to die for him." The old man's speech is the touchstone of truth, and thereafter Admetus' words of sympathy and grief fall coldly on our ears. The intervention of Heracles brings the play to a happy ending; but to a modern, at any rate, it seems that Admetus can hardly have felt comfortable about his share in the business.

Allowing for the fact that the play was acted entirely by boys, the performance was very good indeed. H. H. W. Watling as a serving woman lent much pathos to the part, and E. B. Brooke acted very well in the parts of Pheres and Death, particularly in the former. F. J. Hollowell as Heracles was effective in the earlier parts of the play, where Heracles is a boisterous and semi-humorous character, but was scarcely equal to the fine speech which he delivers before setting out to the struggle with Death. P. H. Cox as leader of the chorus and L. St. J. de Mowbray as Pheres deserve mention, the latter having a very difficult part. The music composed by the Rev. S. J. Rowton was rendered by flutes and lyres and was singularly appropriate, leaving due prominence to the words. The scene in which Alcestis is borne out to burial was exquisitely beautiful. Messrs. J. H. Vince and E. Bayliss, who trained actors and chorus, are to be congratulated on their successful results. We think it a pity that the modern pronunciation is not adopted in the performance; with the "English" vocalization Greek loses much of its beauty of sound. A word may be said of the English verse translation of the play by boys of the College. The translation, which is by various hands, is naturally somewhat uneven, but for the work of boys reaches a very high standard. As one would expect, the lyrics are the least successful portion, but there is good work in the Kommos by E. B. Brooke.

THE Charity Organization Society issues the report of the Examiners of Essays on Thrift written by students in training colleges for elementary teachers under the Board of Education, year 1913-14. The title of the essay was "The Necessity of Individual Saving to Secure Good Wages and Cheap Supplies for All." Eight essays were received and examined. Miss Emmeline Lumb, of the University of Sheffield Training College, received a First Division Prize to the value of £5, and Mr. Stephen Robert Virgo, of the Borough Road Training College, Isleworth, and Miss Hannah Kleinmann, of the Liverpool University Day Training College, received a prize to the value of £2. 10s. each. The two last-named having submitted essays practically equal in merit, the sum of the Second and Third Division prizes has been equally divided between them.

THE COLLEGE OF PRECEPTORS.

MEETING OF THE COUNCIL.

A MEETING of the Council was held at the College, Bloomsbury Square, W.C., on June 24. Present: Sir Philip Magnus, President, in the chair; Mr. Bain, Rev. J. O. Bevan, Rev. J. B. Blomfield, Mr. Brown, Mr. Butler, Mr. F. Charles, Miss Dawes, Mrs. Felkin, Mr. Hawe, Mr. Millar Inglis, Miss Lawford, Mr. Longsdon, Mr. Morgan, Mr. Pendlebury, Mr. Rushbrooke, Mr. Starbuck, Rev. Canon Swallow, Mr. Thornton, Mr. Vincent, Mr. Wagstaff, Mr. White, and Mr. Wilson.

The Secretary reported that the President of the Board of Education had consented to receive a small deputation appointed by the Joint Committee representing the College of Preceptors and the Private Schools Association.

He reported that the number of entries for the approaching Midsummer Certificate and Lower Forms Examination showed an increase of more than five hundred as compared with the entries for the last Midsummer Examination.

The Diploma of Licentiate was granted to Mr. Walter Henry Kernot de Creux-Hutchinson, who had satisfied the prescribed conditions.

The programme of the next series of members' meetings, submitted by the House Committee, was approved.

Prof. John Adams was appointed to deliver the next Course of twelve Lectures on "The Practice of Teaching."

The following Resolution was adopted:—

> "That the Council accept as eligible for membership of the College such teachers in secondary schools as are on the Register kept by the Teachers' Registration Council."

The following persons were elected Members of the College:—

Mr. R. H. P. Blore, B.A., F.C.P., 9 Quebec Road, Ilford.
Mr. T. Kingdom, M.A., 13 Valley Road, Streatham, S.W.
Mr. J. Taylor, A.C.P., 164 Kennington Road, S.E.

The following books had been presented to the College Library since the last meeting of the Council:—

By the INSTITUTE OF CHEMISTRY.—Butterfield's Lecturers on Chemistry in Gasworks; Cross's Lectures on Cellulose; Dreaper's Lectures on the Research Chemist in the Works, with special reference to the Textile Industry; Hill's Lecture on the Function and Scope of the Chemist in a Pharmaceutical Works; Macnab's Lectures on Explosives; White's Lectures on Thorium and its Compounds.

By G. BELL & SONS.—Appleton and Jones's Pons Tironum.

By BLACKIE & SON.—Blackie's Large Type Poetry Books (Junior, Intermediate, and Senior); Stories Old and New (Tiny Town).

By HACHETTE & CO.—Bué's First French Book; Ceppi's French Lessons on the Direct Method (Junior Course).

By METHUEN & CO.—Bulley's Ancient and Medieval Art; Stanley's Preliminary Practical Science, and Practical Applied Physics.

By MILLS & BOON.—Maxwell's Poetry for Boys.

By J. MURRAY.—Rogers's Junior Chemistry.

By the OXFORD UNIVERSITY PRESS.—Auzas' Les Poètes Français du XIXe Siècle; Blackmore's Lorna Doone; Chignell and Paterson's Arithmetic; Goebel's Rosegger's Das Holzknechthaus; Robertson's Nature in Books; Savory and Jones's Passy's Sounds of the French Language; Venables and Peacock's Bunyan's Pilgrim's Progress, Part I.

By the UNIVERSITY TUTORIAL PRESS.—London Matriculation Directory, June, 1914; Bansor's Chemical Calculations; Cracknell's School Algebra; Furneaux's First Course in Plant and Animal Biology; Paterson's The Edgeworths; Weekes's Lamb's Tales from Shakespeare (Second Series); Weekley's School French Grammar.

Calendar of the University of Cape of Good Hope.

THE COLLEGE OF PRECEPTORS.

PRACTICAL EXAMINATION FOR CERTIFICATES OF ABILITY TO TEACH.

THE following candidates were successful at the Examination held in May 1914:—

Class II.

Howells, Miss M. Whitney, T.

A LADY "DOCTEUR ÈS LETTRES."—For the first time in the history of the Sorbonne, the degree of "Docteur ès Lettres" has been awarded to a woman, Mlle Jeanne Duportal, who submitted to the severe academic criticism of the University of Paris a brilliant thesis on the illustrated books of the seventeenth century. Mlle Duportal is the daughter of the Inspector-General of Bridges and Highways and a granddaughter of Armand Duportal, representative of the people in the National Assembly.

CURRENT EVENTS.

A SUMMER Course for Junior Form Mistresses will be held at Cherwell Hall, Oxford, from August 3 to 15. The Course will include lectures on Nature Study, Handwork, Folk Dancing, Drill, and School Gardening. Full particulars can be obtained from the Principal, Miss C. I. Dodd, M.A.

ON July 24 to 27 there will be held a celebration, under the auspices of the Royal Society of Edinburgh, of the tercentenary of the publication of Napier's "Mirifici Logarithmorum Canonis Descriptio," the work which embodies the discovery of logarithms. Lord Moulton will deliver the Presidential Address.

DR. MONTESSORI is proposing to visit England in October in order to give a series of lectures and a short course, with practical demonstrations for parents and teachers. This course will be designed to throw further light on the Montessori Method, particularly with relation to its employment in this country; and prospective students and others interested should apply to C. A. Bang, 20 Bedford Street, Strand, London, for further particulars.

THE Moral Education League, 6 York Buildings, Adelphi, W.C., appeals for funds to continue and extend its useful work.

THE resignation is announced of the Head Master of Dulwich College, which will take effect at the end of this month.

THE Secretary of the Children's Country Holiday Fund, 19 Buckingham Street, Strand, W.C., wishes to remind our readers of the necessity for further subscriptions. The Fund has been at work for over thirty years, and sends away about 45,000 children every year for a fortnight's holiday in the country or by the sea. But the claims continue to outgrow the income. Every £1 ensures a fortnight's holiday for two children.

THE Simplified Speling Sosieti is promoting a petition to the Prime Minister, asking him to appoint a Royal Commission on Spelling Reform. Prof. Gilbert Murray, Mr. Michael Sadler, Dr. E. R. Edwards, and many other well known scholars have already given their signatures. Intending signatories should apply to the Secretary, 44 Great Russell Street, W.C.

A CONFERENCE arranged by the Montessori Society will take place at East Runton, July 25 to 28. Information from the Conference Secretary, 12 Montague Street, Portman Square, W.

THE fifth annual examination held by the Institute of Certificated Grocers was of a "Vocational" character. A number of prizes were offered, the principal being £100. The students have to submit to many severe practical as well as written tests, such as roasting coffee to satisfy a leading trade expert, selecting teas with full identification of their country of origin, grade, characteristics, and value; discriminating between butter and margarine; and stating what is wrong in faulty samples of bacon and ham.

THE Annual Meeting of the Secondary Schools Association will be held at Caxton Hall on July 7 at 2.30 p.m. Sir Philip Magnus will preside, and Mr. Cloudesley Brereton will deliver an address on "Fitting the Secondary School to the Needs of the Twentieth Century."

DR. W. P. HERRINGHAM, Vice-Chancellor of the University of London, has received the honour of a Knighthood.

WE regret to announce the death, on June 1, of Miss J. P. Mears, who was for many years one of the Examiners in Domestic Economy of the College of Preceptors.

MISS TEMPLE ORME, LL.D., who was until recently Secretary to the Froebel Society, has been appointed Editor of the new journal *Kahncrete Engineering*, Caxton House, Westminster.

APPOINTMENT OF DR. T. MORLEY FLETCHER.—The *Cambridge University Review* states that Dr. Morley Fletcher, Fellow and Tutor of Trinity, is going to leave Cambridge at the end of the present academical year to take up an important post under the Government—that of Director of Research under the Insurance Act—and that his position at Trinity Hall will be taken by Mr. E. Harrison.

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THE TEACHING OF ENGLISH IN JUNIOR FORMS.

By A. A. DAVID, D.D., Head Master of Rugby School.

I APPROACH the subject from the direction of the classical curriculum, and mainly in the interest of the less able boys.

In the early stages of this curriculum all boys have been given the particular foundation which is wholly appropriate only to those who are to carry their classical studies into an Honour course at the University. Therefore a very large proportion of the time of all these boys, from the age of ten onwards, has been spent over the grammars, readers, and exercise books of Latin, French, and Greek. But now that Greek is generally postponed, and French taught as a living and not a dead language, it is certain that a considerable number of periods can be spared for other work. I wish to suggest that this work should be English work, of a kind not largely practised now. But first let me review the product of the old curriculum as I have known it.

My experience has convinced me that the ablest boys have learned their own language, and can still learn it, in the course of studying others, but that the average boy, for lack of definite instruction and practice in English, has failed to develop his full powers of reading it, of enjoying it, of writing it, and of thinking in it; and moreover, that his less intelligent comrade, so far from being assisted to do these things, is almost certainly hindered by being taught classics on the traditional system—*i.e.* side by side with those who are apparently able to dispense with definite English training in the early stage. I suspect that here may be found one of the reasons why a large number of boys, when they leave their public schools, are not only poor classical scholars (most of them are born to that), but are also unable to read, or think, or reason, or write, consecutively in their own language. Their training has been largely the handling of thought in a foreign medium. The thought so presented to them has been either artificial and unattractive—*vide* any Latin reader or Greek exercise book—or else almost wholly outside their experience—*vide* any chapter of Caesar or Xenophon. As to the medium, some can learn to find their own way through its strange and at first repellent intrica-

cies, but some lose it so often that their minds become dull through continual discouragement, and at last the task set to them of transferring thought from one language to another seems to them almost a matter of chance. One form or construction is as apt to be right as another!

I hope I shall not be understood to be in any sense belittling the value of classical training. I believe it to be the best for the ablest boys and even in its early stages good for all. But I desire to face the fact which I consider to be clearly established—namely, that for all but the abler boys the time and effort spent on Latin and Greek, between the ages of ten and sixteen, appears so far to be lamentably ill rewarded. The result, whether measured by advancement in the other languages or by parallel progress in the handling of English, is altogether disproportionate to the expenditure of time and labour involved.

I was discussing the whole question the other day with a preparatory-school master. We agreed that the time had arrived for a new, or at any rate a renewed, effort to discover the right foundational teaching of English, and we were proceeding to the real difficulty—namely, how to spend the time which most head masters are now willing to devote to the subject, provided they can be reasonably sure that it will be well spent. At this point he proposed the following question: "Where would you find your substitute for Livy and Thucydides? Where is the really hard English book which shall do for their English what Latin and Greek authors do for their classics?"

I want to consider the presuppositions out of which a teacher finds himself confronted with this difficulty. My friend evidently assumed that the teaching of classics and of English must necessarily proceed on the same lines. Now, the value of Latin and Greek as a teaching subject depends upon the study of a particular kind of literature in a particular way. One of the qualities which determine the value of this literature for this purpose is its hardness. An effort is needed to penetrate through the form to the thought within it. This effort is rightly regarded as a wholesome effort. Accordingly, it is demanded throughout the classical curriculum, and especially in its early stages. Later on quite an easy book will often be read for its own sake, but at first it is a fatal objection to an author that he is "too easy." A master of a lower form seeks for something that his boys can "get their teeth into," and it had better be a little too hard than a little too easy. He is perfectly right. We cannot help them to win anything much more valuable than that which comes through continual mental effort to "make things out." The habitual exercise of insight, the daily experience of difficulty overcome, the sense of mastery, these are good even for boys to whom almost all the real treasures of Roman thinking and writing are in any case denied. (Therefore, I see as yet no substitute for the study at least of Latin in the case of all boys who can afford the time, that is, who can be educated between their eighth and their eighteenth years.)

But they have a right to a training in other mental qualities besides those of insight, of persistent courage, and resourcefulness in dealing with the written word, and another's thoughts behind it. What of their own thinking? Might we not learn how to train them in the handling of familiar ideas through the familiar medium, and thereby to develop in them earlier the power of assimilating food for thought, and rearranging or re-creating it as their own? What of their expression? Might we not give them more frequent and varied opportunity of setting out before others the sequence of their own ideas?

I referred just now to the muddled intellectual condition, indicating almost a kind of atrophy, in which many boys are found to face their main subject after six or seven years of work upon it. It is worth while to consider a little more closely the nature and, if possible, the causes of this condition. Here are extracts taken almost at random from the reports of boys who are said to be "bad at English":

He has no idea of assimilating or criticizing the contents of books.

A very marked case of inability to grasp a line of argument or to bring any imagination to bear on any of his work.

He finds it very difficult to express himself on paper.

This boy is sadly illiterate. Probably he never had much imagination or reasoning power, but no proportion can have been observed in his preparation. He was excellently grounded in Latin.

He is the kind of boy who thinks it meritorious and educative to commit to memory lists of places or people or products or plagues.

His English Composition is clumsy and painful even on simple themes.

He loads his memory with undigested facts which he reproduces without thought or reference to the subject-matter. The result is that he writes astounding nonsense, and is quite content with it.

He has very rudimentary powers of reasoning, and one deduction is just as probable to him as another.

He lacks imagination. (A common and compendious criticism.)

I could multiply such criticisms, but let these for the present purpose suffice. I suggest that we have here the record of failure which is largely preventable, and the broad lines of our effort to prevent it are clear enough.

First let us discover how we may, at quite an early stage, assist them to develop the power of reading with consecutive concentration, that is to say, of taking every mental step of the writer with him, and accompanying him into regions not too strange for them. I believe that such a power will bring with it a growing delight in reading for the mere enjoyment of good things well said. I do not mean that you can teach anybody to enjoy anything, but you can provide the conditions without which the enjoyment is impossible. A boy takes pleasure in a game in proportion as somebody has taught him how to develop his muscles and his eyes for the purpose of playing it.

At the same time, let us give him greater freedom and variety of practice in speaking and writing his own thoughts. Practice in expression, oral or in writing, is probably more important, and possibly should come earlier, than practice in following another's thoughts through sentences and paragraphs. A friend and fellow inquirer of mine always stoutly maintains that it should come first. "Self-expression," he says, "seems to me more of an activity, the exercise of an essential faculty; reading another's thoughts seems to me more passive, less likely to develop the individual, and therefore, secondary. Primitive man spoke before he write—*i.e.* he had to express himself long before he invented books, and for modern man it seems to me more important that he should be able to say clearly what he wants than that he should be at home in the world of books."

Quite so, but he who would practise expression must have something to express. And his store of food for thought must grow. Can he increase it fast enough without books? I have no doubt that Miss Mason is right when she encourages plenty of reading, even in quite early stages, but insists upon immediate oral reproduction, or "narration," of almost everything read. If only our boys and girls could be taught in fours and fives and not in twenty-fives!

Dr. Hartog well points out the importance of directing almost all expressions to a definite audience with whom a boy can easily establish some imaginative sympathy, so that when he reviews his handiwork the confusion of sequence, the flaw in argument, the inaptness of phrase, will stand condemned by his own judgment, and not by some external and apparently arbitrary standard.

How this and much else may best be done must be discovered by experiment, by a comparison of experiences, by all manner of pioneer work, and it must be discovered mainly by every teacher for himself. In a branch of teaching so largely dependent upon personal and sympathetic guidance, there can never be a "method." Possibly the result of a teacher's pioneering will be nothing new. No matter, provided that he has made the "discovery" for himself. I had rather listen to a preacher who thinks that he has discovered what he tells me, even if he is mistaken, than to one who offers me what he knows to be second-hand.

For the teacher it means hard work. Probably he spends more time and labour on his English lessons than on any other. Do they mean hard work for the boys? Is there difficulty enough? Not of the same kind as that involved in dealing with pages of Latin and Greek. In the teaching

of English there is no equivalent for Thucydides. Yet effort will be asked of them, perhaps for many of them of a more hopeful kind. Thinking is always hard work, even in our own language, but every boy can do it. I do not want to relieve him of the old kind of difficulty, but I want a new kind to balance it. After all, we do not depend for sustenance solely on the foods which exercise our teeth.

WHAT SHALL WE TEACH?

By C. F. C. Padel,
Head Master of the Carlisle Grammar School.

Among the discussions on educational reform much is being said and thought about what we ought to teach. We are almost inundated with suggestions, many of them admirable, but the teacher is faced by the fact that his time-table is already crowded, and, however desirable it may seem to include fresh and attractive matter, he is rather in the position of the tramcar conductor who, in self-defence, has to hoist the signal "full inside." It is quite clear that if we are to incorporate new subjects or to expand existing ones we must decide whether it is possible and desirable to throw overboard some of those we have been carrying so far. This will force us to review our school program as a whole and to form some opinion about what is the natural and therefore the best nourishment to set before the young.

Into this question we have scarcely dug deep enough as yet, and it is an excellent thing that we should now be compelled to do so. The old system has been too empirical; we treat our subjects like the ingredients of an educational dose, and weigh one against the other according to the effect we imagine each to have on the formation of the youthful mind. In this way we go on from generation to generation, varying the quantities a little, it is true, but with such faith in the general prescription that we are more ready to think there is something wrong with the learner, if he does not appear to thrive upon our ministrations, than to doubt the efficacy of the traditional compound.

We have got as far as to admit the principle that it is the all-round man and woman we wish to educate; that we must not starve either body or mind, spirit or imagination. We are almost agreed that "interest" is a natural and healthy sign of growth, and that our business is rather to lead than to push. It would be good if our agreement on these latter points were more practical and real. If we kept our eyes upon the interest that leads to activity and the desire to learn more, as upon a thermometer, we should avoid many blunders both of defect and of excess. We should no more feel justified in presenting subjects in a dull and dry way than we expect our cooks to serve us up a repulsive or unappetizing dish.

But our teaching would benefit by nothing more than by a clear conception of what it is that a young mind thirsts for, and what it is natural and right for it to learn to realize, having regard to the time and place in which it finds itself. In the first place it must learn to know itself. That is a long process, but it is the goal of culture and the smallest feet must turn no other way. Secondly, it must learn its whereabouts. Modern philosophy is gaining by an appreciation of the fact that the "ego" divorced from the "non-ego" is an unthinkable phenomenon, and that the study of an object properly includes that of its environment, and of the mutual relations and interactions of the two.

These considerations give us an organic basis for the two sides of our curriculum, the humanistic and the environmental. The child mind seizes on the latter, the traditional educator on the former, but we must recognize that the balance is ill preserved unless we envisage both. It is precisely the latter that removes the too often experienced barrenness of the former, and the former that gives meaning and value to the otherwise hard and mechanical influence of the second.

Now what subjects are included under these two heads? Under the first, of course, comes literature, and (ancillary thereto) language, its medium of expression. Under the latter come the "nature" sciences, and the attendant instruments of experiment and calculation. We shall at once recognize in this classification the traditional studies of English, modern and ancient tongues, science and mathematics. There remain to be considered history and geography—two sister sciences, which are learning to co-operate to the infinite benefit of both. It is hardly an exaggeration to say that the economic factor underlies national story, though it may not inspire and limit all human activity, while the study of earth-description without man is the proverbial play of Hamlet minus the central rôle.

These two subjects, in fact, stand at the point where the humanistic and environmental studies touch the mind of the learner. The individual human element in history, brought out in biography, suggests its relation to literature. The true avenue to literary interest lies by way of those events and achievements which have inspired our great literary works, and no less the "modern" or "scientific" or "human" geography is an attempt to restore to history the manifold departmentalized inquiries which are being pursued by a veritable host of investigators to-day. The man or woman who is to lay claim to present-day culture cannot possibly ignore either of these branches of study in acquiring his or her mental survey of life. It belongs to a true system of education to fill up existing gaps in our intellectual chart, and to replace individual groping by a coherent and adequate scheme of study. The great thing is to be agreed upon the point of view, and upon what it is necessary for the future citizen, householder, breadwinner, and parent to know; for knowledge of the right sort he must have, if he is to play his part properly in the world-civilization which is the heritage that the twentieth century offers to all that are capable of thought and action. With no lesser equipment can we face the grave social and political problems of our time or form opinions on the ideals and policies submitted to our criticism.

And, fortunately, the intellectual prospect is inspiring enough. Set it before children of ten or students of twenty, according to their lights and experience, with an atlas or an essay as text, and we need no further proof of the saying that "the proper study of mankind is man." We have here the clue to the planning of our time-table. The best we can select from our traditional subjects—having in view those with whom our business is—will all play their part in this educational scheme, while, better still, the learner is inspired to read and experiment for himself, forgetting drudgery in the visible goal of ambition—the realization of the individual self as member of a race that moulds and is moulded by the planet which is at once its parent and its pleasaunce.

The selection of subjects that now logically follows becomes clear, to some extent, at once. Under history we must include more than heretofore, and we must begin with the region and the race rather than the charter and the reign. In science we must try to illustrate the connexion between man, the sources of his wealth, and the regions that produce this wealth. In mathematics we must place the solution of the problem before the abstract calculation, in language the living word and phrase before the bones of accidence and syntax. In other words, we must recognize the all-important principle that, prior to the period of specialization, the science of investigation and research is *not* the science of education. The investigator is concerned with the subject, the educator with the learner. In fact our subjects must be presented, not "pure" but "applied." It is the working out of this principle in teaching which will turn drudgery into interest and boredom into joy. Have we not tried the other long enough, and sacrificed sufficient youthful minds on the traditional grindstones? And, bitterest reflection of all, condemned these helpless ones because we were resourceless ourselves?

Of course this selection will mean much weeding out of our present curriculum; many long sums will go, much

grammar, many dates and names, and "loose threads" generally from the pages of the school history lessons for the younger learner. Classics, especially compositions, must give way. We are still superstitious about these last. We forget that they were not originally studied as "mental gymnastics" and that their essence largely lives in the study of history and the reading of translations. The double remoteness of form and of matter is too great a burden for young learners, as we ought to have recognized before this. No champion of the classics has ever dared to set in the forefront of his plea that they interest the learner as he plods through their mystic mazes. Perhaps the chief argument against them as a central medium of culture is this; they do not afford a growing mind the best possible view upon life. The world around us is not 80 per cent. of Greece and Rome, and 20 per cent. of other things. Yet such, or nearly such, is the intellectual outlook of the typical product of a classical curriculum. For those who shall still study classics we may well prune these subjects, in the case of all but specialists. Much of the Greek we have begun to forgo is better than some of the Latin we are prepared to retain, and neither language embraces, even approximately, the sum total of what it is worth while to set before the minds of boys and girls at school.

Of specialization there is space here only to say that it will be helped exceedingly by the broader view which a truly "human" education cannot fail to give. We need more sympathy among those in different walks even of intellectual life, and in no other way can this be won than by an intellectual meeting ground.

There are two other points that call for mention. We can learn much more than we do in far less time, if we set the right way about it, by fully admitting the claims of the all-round training—physical as well as mental—to a place in the time-table, instead of devoting an altogether unnatural amount of time in the day to abstract studies. Hand and eye work, practical interests, must have their place in each day's tasks, especially for the very young, when limbs are active, tastes are concrete, and all around, from the nursery onwards, is suggestive of possibilities and full of mystery and romance. Only so can the spirit of the nursery and home be carried into school, and thence to man and womanhood, and much misery of the thinker, who can never think himself into contentment and happiness, will be avoided later on. Let fingers grow habituated early in life to fashion and adapt, and eye to measure and control. Is there no shame in standing paralysed before every form of substance except the fugitive ball? Let "being read to" also have its share for young and old alike. There is no better stimulus to the imagination, and learners are then properly equipped for the later more scientific aspect of study, if the material they work upon is recognized as part of a mental store amassed by daily "readings" in bygone years.

Secondly, a word about the bugbear of "accuracy," a veritable rock of offence. Young minds must have some side-play, and if we can start by demanding some 10 per cent. of accuracy, and work up to 50 per cent. in the middle school, thence arriving at our desired 100 per cent. in the later stages, how much weary repetition, how much nausea and rebellion will be avoided! We must, of course, know what we know, fix what we observe, but not demand of the young and tender mechanical perfection and wholesale memorizing. If these two principles be carried into practice, the day divided between the training of mind and body in due proportion, the years marked off for "progressive" accuracy, the teacher will be saved as much of agony as the pupil, and both will come safe into port at last.

There are one or two books well worth mentioning as suggestive in connexion with this weeding out and concentration of subjects. Prof. R. G. Moulton, of Chicago University, in his "World Literature and its Place in General Culture" (Macmillan), gives an admirable account of representative literature, lays stress on its educational aspect, and makes out a strong case for the free use of translations. In mathematics, Dr. T. P. Nunn has recently published "Exercises in Algebra including Trigonometry" (Longmans), wherein the value of the problem and the diagram are brought out in the most delightful way. Dr. Mill's "International Geography" has pointed the way to many subsequent editors, and several smaller volumes are valuable as supplementing the study of the new geography. "Man and his Work" (Black) has become a popular book; Heaton's "Scientific Geographies" are strongly original in their treatment; while the reading of several of the volumes of the "Home University Library," side by side with historical and geographical courses, has, to my personal knowledge, a mind-opening influence on the boys in the upper part of a school. There are innumerable other books of value now obtainable at a small price. I have named the above as being helpful to the practical working out of the natural departments of an organic curriculum.

CAREERS FOR GIRLS.*

III.—HOUSEHOLD SCIENCE.

By Ida Smedley Maclean, D.Sc.

The problem of securing efficient household management and adequate household service is certainly one which closely concerns the welfare of the whole community. The changed conditions of modern life have produced profound alterations in modern housekeeping; it is no longer customary for every household to bake its own bread, to wash its own linen, and to perform culinary operations such as curing bacon, preserving fruit, and many others carried out now mainly in factories. How far this co-operative system will extend is uncertain, but many experiments in co-operative kitchens and in various other housekeeping processes are in progress. The introduction of all kinds of labour-saving devices has considerably simplified much of the house cleaning, and probably great improvement will yet be made in this direction. Yet the standard of housekeeping does not seem to have been considerably raised. Under the old conditions the training of domestic servants seems to have been more of an apprenticeship, and in small households where one or two maids were kept the mistress of the household had generally been brought up with some knowledge of and some interest in household affairs, and was able to supply some kind of training to her maids. The entrance of women into industrial and professional life, which has been so great a feature of the past thirty or forty years, and the greater part taken by women in outdoor sports and games, has made it less and less the custom for the daughters of a house to obtain any knowledge of household management. The scarcity of domestic servants makes it possible for a girl with practically no training whatever to obtain a place as cook or housemaid; the result is a household of amateurs who from lack of training waste a good deal of time and labour. A comparatively short course of training in the household arts such as might well be obtained at the domestic arts training schools should prove of great help, and should enable the woman whose professional occupation consists in the management of her house and children to give some adequate training to her maids if she be not so fortunate as to secure well trained ones.

Of recent years a good deal of criticism has been roused by the introduction of domestic "science" into the secondary schools. It has been urged that teachers well trained in the household arts, but themselves imperfectly acquainted with the elementary principles of physical science, have tried to teach physics and chemistry. I do not know to what extent this criticism is justified. It seems certain that a good teacher of physics and chemistry will draw as many illustrations as possible from phenomena within the daily experience of the children and will point out practical applications in the house and elsewhere; but it is a very difficult task to tack the study of physical science on to the study of the household arts even for a teacher who is well trained in scientific method and possesses the power of thinking clearly.

What, then, should be the relation of scientific study to

* Other articles in this series have appeared in the preceding issues.

household management, and what is implied in the term "household science," recently recommended by the Royal Commission as a Department of London University? I think most women who have received a training in physical science and who have subsequently undertaken the management of a household will agree that they have not only found their previous training useful, but that it has made the work much more interesting. In every direction the old rule-of-thumb methods, empirically devised, are being superseded by methods rationally based on a knowledge of scientific laws, and the girl who has received a firm grounding in physical science and has a good knowledge of household arts should be in a better position to solve many practical household problems. The administrator of a large household or of an institution is confronted with many problems other than those of cookery and cleaning. The closer relationship of the household to the industrial and economic world requires from the manager of the household some knowledge of insurance, of poor-law relief, of charitable institutions, and of countless other problems which will at some time or other arise.

The question of diet, which has received so much more attention in America than here, becomes of supreme importance in the efficient administration of a large institution; and there is little doubt but that great improvement might be made both in increasing the variety and the appetizing nature of the food, whilst diminishing its cost, at many of the large institutions supported by public money.

The Domestic Arts Training Schools have for many years past done excellent work in training expert craftswomen in cookery, laundrywork, and other household arts, and have supplied well equipped teachers in these subjects. But more than this is wanted. The object of the Department of Household Science of London University will not be to turn out expert craftswomen; it will be to provide a broad educational training in which the study of the natural sciences is combined with that of the household arts.

The idea that a course in "Household Science" can be based on serious scientific study, and may rank as a University Course in Applied Science, comparable with Agriculture or other technical science, has met with considerable opposition and criticism. In 1908 a three years' course in Household Science was started at King's College for women, with the hope that in time this would develop into a University Course. Although a good deal could be learnt from experience in America, where such courses have long been in existence, such a course must be for some time largely in an experimental stage, and will certainly undergo many changes before an ideal scheme of study is reached; but those who have watched its progress in the preliminary years are convinced that its success is assured, and that as yet we do not know the extent to which it may be developed in the future.

At present at King's College for Women the first year's study is devoted to physics, chemistry, biology, and the household arts. It is open to discussion whether it might not be better to devote this first year entirely to science, and to relegate the study of the household arts to the second and third years. The course is approximately comparable with that for the Intermediate B.Sc. examination. The ground covered is similar; but as far as possible special courses of lectures are given in which the applications of scientific principles as exemplified in household processes are described. In the second and third years the study of chemistry and physiology, with hygiene, is combined with courses in Economics and in Household Arts. In physiology and in chemistry the problems of metabolism, digestion, and diet are obviously of especial importance. The importance on general grounds of an education in scientific methods is difficult to overestimate for women who are to be engaged in household administration on a large scale; for certainly a scientific training should help the student to learn how to attack any problem with which she may be faced; to submit it, if possible, to direct experimental investigation, and to separate the different features involved.

The course at King's College for Women is as yet in its infancy; it has had to struggle with lack of space and money, and with insufficient laboratory accommodation and equipment. Next year the "Household and Social Science Department" is to move into the new buildings now in process of erection on Campden Hill, where, with adequate space and efficient laboratories, it will have favourable conditions for its future development.

It is of some interest to see what posts have been obtained by the students who have already completed their three years' course in Household Science since the scheme was first instituted at King's College. Up to Midsummer 1913 eleven students had finished the whole course, one of whom remained to study for the Associateship of the Institute of Chemistry, with a view to taking up work in technical chemistry. Four are teaching, three of them domestic science, whilst one is a science mistress in a secondary school; four are engaged in some form of social work, one as a settlement worker; one is employed in a Labour Exchange and one is a rent collector. One became housekeeper at the Avery Hill Training College, and after two years' work there started a boarding house, which is having a very prosperous career. The remaining student of the eleven has married, and may be said to be professionally engaged in housekeeping. There is little doubt but that many other openings will present themselves, and that the teaching profession will not be the main profession recruited from the ranks of these students.

The University of Sheffield has also instituted a two years' diploma course in domestic science, which is to follow on matriculation. Courses in chemistry, physics, biology, physiology, and hygiene are taken at the University, but the proportion of time devoted to these is much less than in the King's College course; in the six terms from two to eight hours per week being devoted to science. This course is perhaps framed more particularly for those who wish to become teachers of domestic science, as two hours per week are devoted in each term to the study of education. A course of lectures on business affairs is also included. The training in household arts, which forms the greater part of the course, is taken at the Sheffield Training College of Domestic Science.

The cost of such a training for the student who can live at home is about ten guineas per term. Thus, at King's College for Women the total amount of fees for the three years' course is £97. 13s. In the new Queen Mary's Hostel, which is now in course of erection, residence and board will be provided for £50 for the academic year of thirty weeks, or a composite fee of £77 a year will include both residence and tuition fees.

At Sheffield the University registration fees are £1. 11s. 6d., and the annual composition fee, covering tuition in the University and in the Training College of Domestic Science, is thirty guineas.

A three years' course is also arranged at the Battersea Polytechnic, in which the subjects studied are cookery, laundry-work, housewifery, and "science as applied to housecraft." In this course the household arts, with some instruction in chemistry, hygiene, and physiology, form the basis of the first and second year's work, whilst the third year is devoted to extended training in science for the diploma in "science as applied to housecraft." The fees here are £75 for the three years' tuition. A hostel exists in connexion with the Polytechnic in which the fees vary from £45 to £54 per year.

THE INTERNATIONAL COUNCIL OF WOMEN, 1914.

The International Council of Women has just recently held its fifth quinquennial meeting at Rome, when nearly two hundred women, representing twenty-three National Councils, met together to discuss matters relating to the welfare of women and children. Besides the official delegates, two hundred proxies and visitors attended the meetings and took a lively interest in the proceedings, which were carried on in the three official languages—English, French, and German.

The International Council of Women is a federation of National Councils formed for the promotion of unity and mutual understanding between all women working for the good of humanity. The individual members and societies in any country are, in the first instance, brought together by means of a National Council and are then linked with the women working on similar lines in all parts of the world by means of this larger organization. The representative

character of the Council cannot therefore be too strongly emphasized, and certainly this adds much to the interest of the meetings. The movement, like many others of a progressive character, had its origin on the other side of the Atlantic, the idea having been conceived at Washington in 1888, since when its growth has been steady, the list of Federated Councils showing a continual increase. The National Council of Women of Great Britain and Ireland, better known among its members as the National Union of Women Workers, was federated in 1895, and among the latest recruits may be mentioned the Councils of Bulgaria, Servia, and Finland, while the federation of the newly formed National Council of Women of Portugal was announced at Rome. In countries where a Council has not yet been formed—as, for instance, Egypt, Russia, and China—Hon. Vice-Presidents are appointed who keep in close touch with the Council's work. Her Excellency the Countess of Aberdeen was again elected President of the International Council, and its newly appointed Honorary Officers include representatives from France, Denmark, Australia, Germany, and Canada. The

WORK OF THE INTERNATIONAL COUNCIL

is carried on through the National Councils and also by means of its Standing Committees, of which there are now ten. The latest addition to the number of Committees was made at Rome, when a Committee of Trades, Professions, and Employments for Women was formed, which will work under the convenership of a Doctor of Political Economy, who has the distinction of being one of the few women employed on the staff of a Commercial College in Germany. The Committee on the Legal Position of Women has recently issued an interesting pamphlet entitled "Woman's Position in the Laws of the Nations," giving an account of those laws which press unequally on men and women in the different countries, and this has commanded a wide sale. The important work of this Committee can be judged by the resolutions proposed by its members at the recent Council meeting. Among these resolutions may be mentioned one urging the Affiliated National Councils to endeavour to obtain laws which shall guarantee the civil capacity of the married woman in relation to her personal rights and to her property. Another urges that in all countries the law should give equal rights to father and mother in all respects with regard to their children, and further, that in cases of difference of opinion and at the demand of one of the parents a State Authority shall be empowered to make the necessary decisions. The Council also passed a resolution urging the affiliated National Councils to make efforts to secure Juvenile Courts in all countries where such courts have not yet been adopted, and recommends that women be permitted to conduct judicial proceedings in such courts.

Another Committee works in furtherance of the movement for

INTERNATIONAL PEACE AND ARBITRATION,

towards which desired end such meetings of the women of all lands cannot fail to contribute; while the suppression of the white slave traffic, and the endeavour to encourage the belief in an equal moral standard for men and women is another plank in the I.C.W. platform. The Standing Committee on Public Health encourages women to take an active interest in this all-important question, and has recently issued two pamphlets dealing respectively with "The Health of the Nations" and "The Prevention of Tuberculosis." Another Committee gives attention to all educational matters, and an inquiry conducted by its members has resulted in the publication of a pamphlet entitled "National Systems of Education," which should prove interesting reading to all educationists. The welfare of women and child emigrants also receives the practical attention of the Council.

By its system of Information Bureaux the I.C.W. is able to put its members who travel in touch with societies and persons in the different countries who are willing to assist them in obtaining special information concerning women's work and progress, and can arrange for them to visit those institutions in which they are specially interested.

Four evening meetings, to which the general public was invited, were arranged at Rome during the time of the Council meetings. At the opening meeting of welcome, presided over by Lady Aberdeen, the President of each National Council brought greetings from her own country, her speech in each case being heralded by the playing of the appropriate National Anthem. One of the public meetings was devoted to the consideration of the Life of Women in Rural Districts, when an account was given of the People's High Schools in Denmark and of the Women's Institutes or Clubs in Canada. At another, the special inquiry on Juvenile Delinquency, which has been undertaken by the Education Committee, was discussed. The remedies proposed in each case were better supervision out of school hours and more opportunity for wholesome recreation. The supervised playground movement in the United States of America and the evening Clubs and Play Centres were especially mentioned. The closing meeting of the Council was devoted to the consideration of the Economic Aspects of Women's Work. Mrs. Creighton, President of the British National Council, spoke on

WOMEN'S WAGES.

She pointed out that a quantity of cheap unskilled labour is a menace to the community, and advocated serious professional training as one of the remedies for the present low rate of wages paid to women. Another speaker advocated equal pay for equal work, and showed how the low wages paid to women had a tendency to lower the rate of wages paid to men for the same or similar work. The value of the work of the housewife was also considered, and the meeting closed with a rousing speech on suffrage and economics by that pioneer worker for the cause, the Rev. Anna Howard Shaw of the United States.

But it must not be thought that it was all work and no play. Visits to places of interest were arranged by the Italian ladies, who did all in their power to make the stay of the delegates as pleasant and as profitable as possible; receptions and parties were given with plenty of opportunity for private talk, and many international friendships can be said to date from these quinquennial gatherings. The Queen and the Queen Mother graciously received the officers and members of the Executive Committee and showed a real interest in the work of the International Council. The latter also gave a garden party to the delegates, who much appreciated the honour that was thus accorded to their work.

Those readers who wish to know more about the International Council and its work are asked to apply to the Secretary of the National Union of Women Workers, Parliament Mansions, Victoria Street, S.W., from whom the various publications of the I.C.W. can be purchased. A full report of the Council Meetings just held at Rome is being edited by Lady Aberdeen, and will be ready in September. Copies (price 3s. 4d. post free) should be ordered by all who are interested in the international aspect of women's work.

ELSIE M. ZIMMERN.

REVIEWS.

Misalliance, The Dark Lady of the Sonnets, and Fanny's First Play. With a Treatise on Parents and Children. By Bernard Shaw. (6s. Constable.)

Dramatic criticism forms no part of the work of this journal, so the greater portion of the present volume lies without our scope. It contains, however, an overgrown introduction that by reason of its 116 pages perhaps deserves its author's title of a Treatise. Yet the reader who is unacquainted with Mr. Shaw's vagaries—if any such readers are left—will be disappointed if he relies upon the formal word "treatise" as a guarantee of anything in the way of organized thought. What we get here is no steady light, but a series of dazzling flashes such as might come from a searchlight somewhat out of order. Some people may think that Mr. Shaw owes it to education, since he has voluntarily taken up the subject, to give a clear and reasoned statement of his views. That is not Mr. Shaw's mode. He deals with a subject in the way that happens to please him, and he has the irritating power of making his readers interested, however much he may tantalize them. His "Pygmalion" is really an essay in education that rouses the interest of all who follow the craft unblessed of Mr. Shaw. We should dearly love to have the educational practice exemplified in "Pygmalion" confronted, by its author, with the educational theory of this treatise. But we do not have the least hope of having our wish gratified—unless, indeed, Mr. Shaw should chance to read these lines, in which case there may be a chance after all, if Mr. Keatinge's theories are worth anything.

Whether we like it or not, we teachers must take account of this wayward critic who has caught the ear of the public and can get people to read a bizarre treatise who would never dream of opening a serious book on the subject. Schoolmasters cannot afford to neglect a writer who can place well known facts in new and striking lights. The most experienced among us will be all the better for the shaking up that must result from glancing through the pages of this treatise. To begin with, we shall read very little good of ourselves. For Mr. Shaw seems to have taken possession of Mr. H. G. Wells's mantle, and adopted the part of baiter of schoolmasters. "Practically all the teachers are bores trying to do the work of artists." This is mild for Mr. Shaw, but it contains the root of the matter. He has an intense

dislike of the schoolmaster spirit—a dislike that he gratifies by alternately telling the schoolmaster to mind his own business, and telling him that he has no business to mind. "It is the Life Force that has to make the experiment, and not the schoolmaster; and the Life Force for the child's purpose is in the child and not in the schoolmaster." It does not seem to have occurred to Mr. Shaw that it may possibly be in both. A philosophy that proceeds by the reconciliation of opposites does not appear to commend itself to the author of this treatise, but is not on that account to be ruled out of court. Indeed, it requires some such philosophy to account for the life and work of Mr. Shaw himself. The violent antagonism between him and the schoolmaster exists as a fact, and must have some meaning. The opposition, it is true, may be resolved by the simple process of elimination; but as there are many schoolmasters and only one Mr. Shaw this solution of the difficulty would involve either the loss of a large, if undeserving, body of people without whom long-suffering parents would have still more to endure, or the loss of one man that the public would certainly miss. We cannot bring ourselves to accept either alternative. Even schoolmasters cannot regard with equanimity the prospect of the elimination of Mr. Shaw. We must do the best we can to live peaceably with each other, and make the most of the good points of teachers and their critic. The schoolmaster cannot do better, then, than take up this treatise and read it through with the grim determination to profit by it. Fortunately, no great effort is required to keep our attention fixed. However irritating the text may be, it is always interesting. However little we may be inclined to agree with the author, we cannot help reading on and being impressed with what he says. Disappointed as we may be at finding no connected chain of thought underlying the whole, we cannot help being charmed by the brilliant presentation of individual points. We may not be willing on public platforms to admit the truth of many of the criticisms, but all of us will feel in our hearts that every now and again we are brought face to face with some subterfuge that we have used more or less subconsciously, but that now stands out for ever as something to be given up. Not infrequently the treatise induces us to take a stronger stand on points on which we were always intellectually convinced. There is a stirring power in the text that is not to be resisted. The schoolmaster who is open-minded enough to read this book with any degree of sympathy cannot fail to become still more open-minded.

There is, further, a certain comfort to be had from reading the *whole* treatise; for, in the course of writing, Mr. Shaw cannot keep up his destruction all the time. The schoolmaster will have the comfort every now and again of coming across a concession that does much to reduce the asperity of the treatise as a whole. Much as he appears to contemn it, common sense is never very far from Mr. Shaw, and a careful collator of passages could readily make out such a list of concessions as would tone down the whole very materially, if that whole were presented in the ordinary didactic form. It is illuminating, for example, to come upon such a sentence as "Children do not want to be treated altogether as adults: such treatment terrifies them and overburdens them with responsibility." Yet the reader will not grumble at the startling statements that have to be explained away by such admissions. We have to confess that we need to be stirred up out of our lethargy, and we are grateful to Mr. Shaw for his efficient work as an awakener. Occasionally he does useful constructive work. His manipulation of the two kinds of imagination, for example, is excellent, and will give the teacher help of a quite different kind from the mental shock that is the characteristic of the book.

Education and Psychology. By Michael West. (5s. net. Longmans.)

Mr. West is not happy about our education. "At least 50 per cent. of highly educated boys and girls" are in that condition of inattention that marks *dementia praecox;* "The frequent combination effected by education" is "talkativeness combined with helplessness"; "The school presents us with the choice of uneducated character, or educated incapacity"; "Statistics show that so far as the body is concerned we were better without schools"; "Education looked at from this aspect is a parasite upon human progress"; of the primary school "One cannot really tell what its purpose is." Little wonder, then, that Mr. West concludes that the schoolmaster is in bad case, and that "He should thrash himself." So far we seem to have here a re-echo of the disturbing pessimism of such books as "The Curse of Education." But our author does not content himself with cursing. He has remedies to offer.

The thesis of the work is that our education is too bookish, and appeals too much to the mere intellect. On page 276 our author explains that when the child should be acquiring motor complexes he is kept at sense-training in the kindergarten; at a time when he is naturally fitted to acquire practical skill with abnormal aptitude he is kept at purely intellectual work; when his powers of acquiring practical skill are at their lowest and his tendencies lead him to a voracious excursion into literature, his literary teaching ceases and he begins his technical education. In short, "education is most accurately upside down." Our author would reverse this topsy-turvy condition by keeping all children up to the age of ten at a modified form of kindergarten in which there would be a greater recognition of the motor needs of the pupils. At this stage the three R's could be acquired in the pupil's stride, and without the enormous waste involved in the present system. Then would follow three years at a preparatory trade school, during which time the teachers would be able to separate out the kinds of trades for which the pupils have no aptitude. The first year in such a school might include work preparatory to no fewer than six trades all suitable to the locality in which the school is placed. At the end of the first year the two of these trades for which he has shown least fitness would be eliminated from the curriculum of each of the pupils, in the following year other two would go, leaving the pupil with the two for which he has shown most aptitude. This system of cumulative specialization would leave the pupil at the end of his preparatory course in a position to enter upon the intensive study of whichever trade has the double qualification of suiting him and being in demand at the particular centre where the boy is being trained. The final result would be that every boy would leave school with a thorough preparation for one special trade, and a somewhat less thorough preparation for trades that are cognate to the first. It is claimed that this scheme would give all the benefits of intelligent specialization without the recognized evils of our present system of over-specialization.

The great merit of the scheme, from the teacher's point of view, is the system of getting at a boy's strong points by a process of elimination. Mr. West is convinced that the world has no use for the person who can do anything just a little below the average, and he has no faith in that scheme of education that makes the pupils give special attention to subjects in which they are conspicuously weak. Obviously "formal training" gets short shrift at the hands of Mr. West. The chief characteristic of his scheme is the direct and specific preparation for each of the needs of life. The very brief outline of his scheme given above is apt to convey the impression that the book is written with a purely utilitarian aim, and based upon a distinctly materialistic philosophy. As a matter of fact, the author lays very special emphasis on the liberal subjects, and is at pains to show that they are of first-rate importance, though even they have to be specifically taught.

There is something particularly fresh about the whole book. So unconventional indeed is the treatment that sometimes the reader is not quite sure about the author's meaning. For example, on page 123 we cannot be quite sure what is meant by the resemblance of a sheepdog to a sheep, and on page 155 the passage dealing with the "standard of laughter" is, to say the least, obscure. Then again, on

page 49, it is clear that for *metabolism* we should read *anabolism,* for in other parts of the text the proper term is used. The author shows a delightful frankness and courage in dealing with what are regarded as dangerous topics. Not many writers would venture to declare that "the foundation of a Reputable Dancing Hall would be a eugenic factor of the highest national importance," or that "we see no reason why schools should not recognize fighting," or again, "let the teacher remember this above all—not to be too sympathetic towards sick children."

What will somewhat endanger the success of the book is its double appeal. It is cast in the form of a textbook of educational psychology, but it is much more than that. In fact, its author tells us that it is "primarily" intended for a much wider public. The trouble is that colleges may regard the book as not sufficiently academic, and the public may regard it as too academic. Nothing could be better for the training college classroom than the freshness and humanity of this book, but its value would be increased by a greater number of references to authorities. These could be confined to foot-notes. No doubt the author is anxious not to prejudice the general public by an array of authorities. But the public need not read foot-notes, and for the text we have nothing but praise. Even if our author fights shy of references, he might at least give us an index.

Interpretations and Forecasts. A Study of Survivals and Tendencies in Contemporary Society. By Victor Branford, M.A., sometime Honorary Secretary of the Sociological Society. (7s. 6d. net. Duckworth.)

The volume consists mainly of a number of papers "nearly all prepared to serve some temporary purpose in the propaganda of sociology." First there are some illustrations of sociology: a picture of the perfect citizen; the distinction between the social, the socialistic, and the sociological; education social and sociological. Then, in succession, the citizen as sociologist, as psychologist, and at the theatre. Next the medieval citizen is fragmentarily sketched, with indications of his education through guild, theatre, cathedral, and city, and his achievements in culture and in craft admiringly declared. Thereupon the modern citizen—what he has and what he wants. What he has is the control of natural forces in unique and undreamed-of measure; what he wants is "the knowledge and the impulse to use this newly acquired and creative power for the perfecting of himself through the fulfilling, if he only knew it, of the heart's desire." The present is a time of transition—naturally. Transition to what? Well, that depends; but we had better mind the counsels of sociology. There now follows an examination of some American illustrations of adjustment to a new era; for "nowhere are more conspicuously manifested than in America alike survivals of the old order and tendencies towards the new." Finally, the conclusion of the whole matter.

A thick volume of some four hundred pages inevitably conveys some indications of its subject. But more is expected from a big volume than from a number of temporary addresses. Every thinking person will welcome, with Mr. Branford, "the vision of the City Beautiful and the Gospel of a Good Race," and will be ready to give due honour to the promoters of either or of both. But one cannot be expected to be content with rhapsodic and picturesque recommendations or "urges": one looks not for a treatise on sociology, but at least for an explicit statement of the ends and methods of sociological action, a careful account of what has been done and of what yet remains to do and the prospects of getting it done, and a balanced estimate of the citizen's duty in the matter as co-ordinated with his other multifarious duties—in a word, a scientific, or at least a fairly businesslike, exposition of the principles inculcated. The Edinburgh Outlook Tower, we dare say, is a very notable and useful erection, deserving to be reproduced in every other city; but when Mr. Branford speaks of its uses "as Clearing House of Social Initiatives, as Station of Storm Warnings, as Laboratory of Applied Sociology," one regrets that he should have overlooked, what we apprehend to be the fact, that his readers will have some difficulty in putting any very definite meaning into his brave words. "From its whole set of activities, compared, co-ordinated, and generalized, city by city along all the chain of such initiatives which some day the sociologist hopes to see encircling our globe, there should be gradually built up the respective Eutopias of Neighbourhood, City, Region, Nation, Language, Occident, Orient, Mankind." Is it not a pity, then, that Mr. Branford has not thought of giving his readers some intelligible outline of the specific activities of such a marvellous institution? Mr. Branford assigns to the Sociological Society—may its beneficent activities increase!—the direct credit of the advance marked by the establishment of the Galton Chair and Laboratory of Eugenics at University College. "For it was under the auspices of the Sociological Society that eugenics, after being long an almost individual study, an unregarded scientific interest, if not an obsession, of Francis Galton was honourably recognized and launched on its public career as a branch of applied sociology along with Civics."

Is this really so? Did Galton really need this Society to bring his studies to public recognition? We are even under the impression that it was his estate that provided the endowment for both Chair and Laboratory. We observe that "no mean morsel of the prophet's mantle has fallen" on Dr. Saleeby; but without diminishing by a tittle the credit justly due to Dr. Saleeby, we cannot but remark on the absence of all reference to the vastly more important work of the Galton Professor, Karl Pearson. And so, again, why cannot Mr. Branford promote his ideal without disparaging—nay, vilipending—other social workers? The philosophers will not trouble themselves about stale jibes. But why should the University—no particular institution, but "the University"—be said to "have lost its ancient vision of the city"? And why should it be said that "its present and dominant ideal" is that of "becoming 'a well-endowed moral vacuum'"? Certainly, all Universities are seriously hampered by want of anything approaching to adequate endowment, but on what ground does "vacuum" come in, "moral" or other? With every sympathy for Mr. Branford's ideals, we cannot but regret that he has not adopted a more substantial and sober method of recommending them to an insufficiently attentive and meagrely instructed public.

Scripture Teaching in Secondary Schools. A Report of the Second Conference held in 1913. Edited by H. Cradock-Watson, M.A. (1s. 6d. Cambridge University Press.)

The object of the Conference held last year in Oxford was "to discover the best methods of Biblical instruction in the light of modern scholarship." Whatever may be the views of the teacher, whether he hold a belief in verbal inspiration or see in the Bible "not an infallible book, but the record of God's progressive revelation in history," he is often, both in class teaching and in private conversation with his pupils, brought face to face with the gravest difficulties. If, for instance, he himself hold "the new conception as to the place, function, and meaning of religion, which we owe to modern anthropology on the one hand and to modern psychology on the other," or if, as sometimes happens, he is called on "to meet the attacks which are made on Christianity by a crude application of critical methods," what should be his attitude? Is he to discuss such problems honestly, at the risk of creating a spirit of scepticism, or to ignore them, at the risk of leaving the boys to face the hostile criticism of Christianity at a later date without any preparation for such a struggle? To teachers, especially young teachers, conscious of the difficulty of their task and of their responsibility, in that the boys who pass through their hands "are probably either gaining or missing their principal, it may be their one, opportunity of acquiring an intellectual religious outfit," this little book will be interesting—often probably helpful and suggestive. In the first place, it is a *little* book—only eighty pages altogether. Of the nine short papers on different aspects of the question by well known school masters and professors, we would especially draw attention to the practical suggestions in those on "Sincerity in Religious Teaching," by the Head Master of Harrow, and on "The Relation of the School Scripture Lesson to the Work of the Churches," by the Principal of Mansfield College. In the former Mr. Ford's suggestions to the "perplexed layman" and to the layman who is "shy of talking about the things that really matter" are both well timed and helpful. In the latter Dr. Selbie points out that it

(*Continued on page* 344.)

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There are other interesting papers by Canon Scott Holland, Canon Masterman, Prof. Peake, Dr. Headlam, Mr. H. G. Wood, and Mr. N. P. Wood. The book from beginning to end is a protest against the mechanical teaching of Scripture, the limitation of the subject to a few books of the Bible, and those not always the best from a spiritual and moral standpoint, and the amassing of "concrete information . . . gathered from the notes, such as

> lists of Jewish kings,
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The keynote of the book is that the shipwreck of faith may in many cases be prevented by a wise, candid, and sympathetic instruction in early youth. To aid the teacher an excellent classified bibliography is appended.

A History of the Royal Society of Arts. By Sir Henry Trueman Wood, Secretary of the Society. (15s. net. Murray.)

It may at first seem surprising that the Royal Society of Arts should wait for its history to be written till the approach of its 160th year of existence, but, when one glances at the appalling multiplicity and extent of its activities, the marvel is that any man should have had the courage to tackle the enterprise, especially as the delay has rendered necessary an immense amount of research to fill in details and to verify particular facts. The scheme was originated by William Shipley, "a drawing-master of no great eminence," and it was put into concrete shape at a meeting of eleven persons, including two peers, three members of the Royal Society, and a director of the Bank of England, and the most influential and helpful of these was Lord Folkestone, the first president. The roll of membership is naturally most varied and distinguished, and the operations of the Society touch the general history of the country at many curious points. "It came upon us as a revelation," writes Lord Sanderson, a recent Chairman of the Council, in an interesting preface, "that the names of the elder Pitt, Lord North, Lord Rockingham, Lord Bute, and other historic Ministers of the time of George III were enrolled among the earliest members in somewhat uncongenial company with John Wilkes and Woodfall, the printer of the 'Letters of Junius'; that Dr. Johnson is believed to have made at one of its meetings the only speech which he is known to have delivered on his legs; that Oliver Goldsmith was anxious to offer himself as a candidate for the post of Secretary, but was deterred by the refusal of Garrick to support him: and that the Society's efforts to introduce the bread-fruit tree into the West Indies led to Captain Bligh's expedition, which terminated in the mutiny of the 'Bounty' and the colonization of Pitcairn Island." The original object of the Society was solely to award premiums for meritorious discoveries and inventions, and for advances of any kind in arts, manufactures, and commerce. Gradually the diffusion of information by means of publications came to be recognized as a no less important method. The subjects dealt with could be adequately indicated only by an enumeration of all the matters and processes involved in the industrial and artistic progress of the country. The Society has always been evoking and signalizing new ideas, and constantly adapting its operations to changing conditions; and no quarter of the world has escaped its attention. When independent associations have taken up any part of its work, and established themselves efficiently, the Society has been content to leave the subject to them, and to seek fresh fields of activity. Thus, after long and notable efforts for the development of home agriculture, the Society devoted itself to various branches of agriculture and industry in the Colonies—work that would now naturally fall to the Colonial and Imperial Institutes. It has been great on Exhibitions: a first attempt at a public exhibition of the works of artists led to the foundation of the Royal Academy; it held the first exhibition of photographic pictures; and "the organization and promotion of the scheme for the International Exhibition of 1851, with all the results that flowed from it, including the creation of a Government Department of Science and Art, must no doubt be considered the Society's greatest achievement in this field of starting enterprises which have had an independent development." Sir Henry T. Wood gives an ample account of the Council and its officers, of the offices themselves, and of the financial ups and downs. The Society, strange to say, has never had a penny of State aid. It is now "in the position of people with fixed incomes and growing expenses." Fortunately, "it is certainly as prosperous now as it has ever been"; but, if it should ever require aid, it can show an amount and variety and value of work done that could scarcely be equalled by any other institution in the country. We heartily congratulate Sir H. T. Wood on the successful accomplishment of this arduous history of the Society that he has served so efficiently for more than forty years.

Problems of Science. By Federigo Enriques. Authorized Translation by Katharine Royce. (10s. net. Open Court Publishing Co.)

An authorized American translation has at length been published of Prof. Federigo Enriques' remarkable work, "Problemi della Scienza," which first appeared in 1906, and is now in its second Italian edition. The author, who occupies the Chair of Projective and Descriptive Geometry in the University of Bologna, is already well known to mathematicians and logicians; his present philosophical discourse upon scientific methodology will introduce him as a scholar of the first order to many students, both of his own and of other branches of science. Lest the title appear misleading, it should be stated that his labours have taken the form of a critical study of problems relating to the logical and psychological development of scientific knowledge. Despite a certain bombastic element in style, his ideas are clearly expressed; they act as a stimulus to the powers of reason and deduction, and endeavour, by logical argument, to connect the divers subdivisions of knowledge one with another, to form a coherent whole such as is characterized by the distinctiveness, no less than by the interdependence, of its parts.

Essentially of high intellectual character, it is in no sense a "popular" book; it is a treatise for the student (and the teacher, too, who must ever be *in statu pupillari*)—for the specialist who would extend his outlook upon the cosmos of science. The author perceives in science a nobler purpose than the mere recognition and tabulation of physical phenomena; he lays stress upon the synthetic aspect of scientific theory, and would have us emphasize the *relations* rather than the facts of scientific knowledge. This view should not, however, lead him into the error of quoting such facts incorrectly: the law of combination of gaseous volumes, due to Gay Lussac, is here attributed to Dalton, whose atomic theory is, in turn, ascribed to Avogadro, the originator of the molecular hypothesis. Prof. Enriques describes the

(*Continued on page* 346.)

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(*Continued on page* 348.)

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Industrial Studies: Europe. By Nellie B. Allen. (3s. 6d. Ginn.)

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The Art of Dying. (3s. 6d. The Tapestry Studio, Shottery, Stratford-on-Avon.)

The ancient spelling retained in the title of this book causes the reader a momentary doubt. Let us hasten to add that it deals with the art of dyeing by means of vegetable colours. It is a reprint of a book published in 1705, and is issued in memory of famous craftsmen of old to whom the best only was good. The publishers have found colour teaching of great value in schools for defective girls; they also hope the book will be helpful in the present revival of arts and crafts.

Handwork in Early Education. By Laura L. Plaisted. (4s. net. Clarendon Press.)

This book aims at supplying ideas for different kinds of handwork and directions for carrying them out. It is very rich in suggestions and is sure to be of the greatest help to those "young students and practical teachers working in isolation," for whom it is intended. There are lists of reference books, one at the end of almost every chapter, which would attract the conscientious student. It might have been well to place the chapter on Clay Modelling nearer the beginning of the book and to associate it in some way with Chapter III—Suggestions for the Employment of Little Children—in view of the fact that it is, from so many points of view, desirable to bring modelling very early into a course of handwork. The author does, indeed, point out its excellence for young children, but not in the special chapter on their employment, to which the teacher searching for suggestions might limit herself at first.

Educational School Gardening and Handwork. By G. W. S. Brewer, F.R.H.S. (Cambridge University Press.)

This book should be in the hands of all teachers of Nature study, whether or not school gardening is formally included as a part of their subject. It is full of useful suggestions and is delightfully fresh, showing a cultured and truly educational outlook.

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La Révolution: Pages choisies. By W. M. Daniels and Edmond Cotton. (8d. Harrap.)

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Exercises on Le Blocus. By J. T. C. Hayter. (10d. Cambridge University Press.)

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Organic Chemistry for Students of Medicine. By James Walker, LL.D., F.R.S., Professor of Chemistry, University of Edinburgh. (6s. Gurney & Jackson.)

The sections of organic chemistry that have been considered are those which possess special interest and importance from the medical point of view, the idea of the book being to give just the information that a medical student should possess as a preliminary to the specialized application of the subject. The work is dealt with in a straightforward manner without unnecessary padding. A discussion of nitrogenous compounds occupies the last hundred pages, the concluding chapters dealing with Proteins, Alkaloids, and Dyes. The medical aspect is emphasized throughout. Medical students should make a note of this book, for it is one from which much benefit can undoubtedly be derived.

The Elements of Descriptive Astronomy. By E. O. Tancock, B.A., Assistant Master at Giggleswick School. (2s. 6d. net. Clarendon Press.)

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"Indian Series."—*Intermediate Mechanics.* For Indian Students. By F. C. Turner, M.A., and J. M. Bose, M.A., B.Sc. Edin. (4s. 6d. Longmans.)

Arranged to follow the syllabus of Calcutta University and to suit the needs of Indian students generally. Dynamics occupies the first part and statics the second part, with two final chapters on parabolic motion under gravity and centripetal force. The work follows much the usual theoretical lines. The treatment generally is fairly expansive, and aims at the acquirement of knowledge, and not mere information. The obsolete first and third systems of pulleys are a redundant feature.

Introduction to Modern Inorganic Chemistry. By J. W. Mellor, D.Sc. (4s. 6d. Longmans.)

Our appreciation of Dr. Mellor's larger book on "Modern Inorganic Chemistry" may well be extended to this present volume, which, as the title indicates, is in the nature of an introduction to the more complete and larger work. It is full of sound information, while the useful and practical aspect of the subject is kept well to the front. It has been written in a delightfully clear and interesting manner, and, being one of the best books published on this subject, forms a most excellent textbook for secondary-school purposes.

Sound: an Elementary Textbook for Schools and Colleges. By J. W. Capstick, M A. Camb., D.Sc. Vict., Fellow of Trinity College, Cambridge. (4s. 6d. Cambridge University Press.)

This book should need no further recommendation than the mere mention of the fact that it is one of the "Cambridge Physical Series." The first section covers the usual ground in a perfectly satisfactory manner, while the later chapters on Consonance and the Elementary Theory of Musical Instruments will be appreciated by students of music and those interested in orchestral work. Clearness and thoroughness of expression have been maintained throughout, and there is a noteworthy elimination of mathematical difficulties. The book will form an excellent introduction to the more difficult analytical treatises.

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Problems of School Hygiene. Being a Report of the first Conference of Scottish School Medical Officers. Edited by W. Leslie Mackenzie and Lewis D. Cruickshank. (2s. 6d. Hodge.)

The Conference of which this volume is a report marks an im-

portant stage in the matter of the medical inspection of school children. Sir John Struthers gave an address on "The Importance of Medical Inspection," and various aspects of the subject were discussed by some seventy delegates from all parts of Scotland. Teachers, no less than medical inspectors, are concerned with the questions raised, and will find much help in this volume.

Health. By Mildred M. Burgess, M.D. (1s. 6d. net. Lewis.)
This manual follows the syllabus of the L.C.C. course of lectures on health, and brings together in one handy volume a large amount of practical information about ventilation, water, the house, food, clothing, exercise, and disease.

Dental Diseases in relation to Public Health. By J. Sim Wallace, D.Sc. (3s. net. The *Dental Record* Office.)
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A Textbook of Elementary Building Construction. By Arthur R. Sage and William E. Fretwell. (3s. 6d. net. Methuen.)
The writers of this book are lecturers in building construction and plumbing respectively in the London County Council School of Building at Brixton, and they have brought together in one volume the information needed by first-year students preparing for the Lower Examination of the Board of Education. The book is also intended for students preparing for other examinations in building. There are many illustrations. The subject is treated in a clear manner and with great thoroughness.

BOTANY.

Genera of British Plants. By Humphrey G. Carter. (4s. net. Cambridge University Press.)
This useful handbook is based on Engler's syllabus and embraces all British vascular plants. Some such guide has long been needed in English. Valuable assistance has been given by specialists, and it is to be imagined that everyone who has ever been sufficiently interested in plants to use Hooker's "Flora" will now want to supplement it by this interesting volume. It, of course, quite supersedes older books when there is any question of Pteridophyta or Gymnosperms. Honours students in Botany and others are to be congratulated on receiving this aid to their studies.

Plant Life in the British Isles. By A. R. Horwood. (6s. 6d. net. J. & A. Churchill.)
The title of this book suggests ecological treatment, something on the lines, perhaps, of Tansley's "Types of British Vegetation," but examination shows that it is of a kind already more numerously represented, which aims at describing individual plants with the aid of photographs, and that it is intended for those who do not wish for technical study. Two other similar volumes are to follow and complete the work.

Talks about Trees. By John W. Gofton. (1s. 6d. Religious Tract Society.)
This book is not well arranged, and in certain cases—*e.g.* aspen—the descriptions given are not enough for identification of the trees. The little sketches of leaves, &c., are its best feature.

Wild Flowers as they Grow. By H. Essenhigh Corke and G. Clarke Nuttall. (5s. Cassell.)
A volume of this series has already been noticed. The features of this one are very similar.

MISCELLANEOUS.

The Boy Scouts' Roll of Honour. By Eric Wood. (3s. 6d. net. Cassell.)
Sir Robert Baden-Powell contributes a foreword, to which is appended a reproduction of his signature. The book contains a coloured frontispiece and eight other illustrations. It is a large and handsome volume. Mr. Wood's idea, which is cordially supported by the Chief Scout, is to give an account of brave deeds actually done by Scouts of this generation. This provides perhaps a stronger impulse to bravery than the recital of great deeds of the past. The Scouts commemorated in the volume come from all parts of the Empire. Their doings, which gained for them awards for gallant conduct, make stimulating reading.

Told in Dicky-bird Land. By Gladys Davidson. (2s. 6d. net. Nutt.)
This is a series of simple and interesting little stories describing the lives of familiar "garden birds," their family happenings, their adventures, their dangers, and the lessons the young ones learned from experience. The tales are faintly but pleasantly reminiscent of the "Story of the Robins" of our youth, and should prove almost as popular with the little ones.

DIRECTORIES.

The Directory of Women Teachers and other Women connected with Higher and Secondary Education, 1914. (7s. 6d. net. The Yearbook Press.)
This is one of those indispensable books, the annual reappearance of which we welcome. The first edition, published last year, was necessarily incomplete, and even now the editor is not satisfied, and appeals to correspondents to send further information. The difficulty of getting people to fill up forms for a publication of this kind is well known, and, further, the idea of seclusion on the part of some teachers still has force. But this second edition marks a very distinct advance on the previous one. Besides the list of teachers and of schools, information is given on all the points which one expects in a directory of this sort. The book should certainly find a twelve-months' resting-place in every common room.

PUBLICATIONS RECEIVED.

EDUCATION.

The State in its relation to Education. By Sir Henry Craik. New and Revised Edition. Macmillan, 3s. 6d.
Board of Education. School and Employment in the United States. Vol. XXVIII of Special Reports on Educational Subjects. Wyman, 1s. 6d.
The Schools and the Nation. By Dr. Georg Kerschensteiner, Director of Education, Munich. Authorized translation by C. K. Ogden. Introduction by Viscount Haldane. Macmillan, 6s. net.

CLASSICS.

The Revolt and Fall of Capua. Livy XXIII to XXVI. Edited by T. C. Weatherhead. Cambridge University Press, 2s.
Terence: Phormio Edited by John Sargeaunt. Cambridge University Press, 3s.
The Alcestis of Euripides. The Greek Text with English Verse Translation parallel. By Sixth Form Boys of Bradfield College. Milford, 1s. 6d. net.

FRENCH.

French Translation and Composition. By H. J. Chaytor and E. Renault. Heinemann, 2s.
French Unseens: Junior Course. Selected and arranged by A. R. Florian. Rivingtons, 1s. 4d.
Renard le Fripon. By Marc Ceppi. Illustrated. E. Arnold, 1s.
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MATHEMATICS.

Readers desiring to contribute to the Mathematical columns are asked to observe the following directions very carefully:—

(1) *To write on one side only of the paper.*

(2) *To avoid putting more than one piece of work on a single sheet of paper.*

(3) *To sign each separate piece of work.*

Alternative Proof of Euclid II, 9.

By R. F. Davis, M.A.

Let AEBH be a square whose diagonals AB, EH intersect at right angles in C.

Along CB, CH measure equal distances CD, CF; and draw FL parallel to CA to meet EA produced in L.

Then ADFL is a parallelogram; and

$$HL^2 = LF^2 + FH^2$$
$$= AD^2 + DB^2,$$
and also $$= AH^2 + LA^2$$
$$= 2AC^2 + 2CD^2.$$

17709. (Lt.-Col. Allan Cunningham, R.E.)—Show how to form $(N)_r = X_r^3 + Y_r^3 = N_1N_2N_3 \ldots N_r$, where $N_r = x_r^3 + y_r^3$ (all numbers integers). Give numerical examples up to $r = 4$.

Solution by the Proposer.

Start with any x_1, y_1 giving $N_1 = x_1^3 + y_1^3$.

Take $x_2 + y_2 = 1$, $y_2 = \frac{1}{3}(N_1 - 1)$.

Then $$N_2 = (x_2^3 + y_2^3) = (x_2 + y_2)(x_2^2 - x_2y_2 + y_2^2)$$
$$= 1 - 3y_2 + 3y_2^2.$$

Next, take $$X_2 - 2Y_2 = 1, \quad Y_2 = -y_2,$$
so that $$X_2 + Y_2 = 1 + 3Y_2 = 1 - 3y_2 = N_1.$$
Hereby $$\mathbf{N}_2 = X_2^3 + Y_2^3 = (X_2 + Y_2)(X_2^2 - X_2Y_2 + Y_2^2)$$
$$= N_1.(1 + 3Y_2 + 3Y_2^2)$$
$$= N_1.(1 - 3y_2 + 3y_2^2) = N_1N_2.$$

This process may be repeated. Thus, starting with
$$\mathbf{N}_2 = N_1N_2 = X_2^3 + Y_2^3,$$
find $N_3 = x_3^3 + y_3^3$. When formed as above, this will yield
$$\mathbf{N}_3 = \mathbf{N}_2.N_3 = N_1N_2N_3,$$
and so on, *ad inf.*

Ex.—Take $x_1 = 2$, $y_1 = -1$, giving $N_1 = 2^3 - 1^3 = 7$;
whence $x_2 = 3$, $y_2 = -2$, giving $N_2 = 3^3 - 2^3 = 19$;
whence $X_2 = 5$, $Y_2 = 2$, giving $\mathbf{N}_2 = 5^3 + 2^3 = 133 = 7.19$.

Step 2°.—$X_2 = 5$, $Y_2 = 2$, and $N_2 = 133$, treated as above, yield
$$x_3 = 45, \quad y_3 = -44, \quad N_3 = 5941;$$
whence $$X_3 = 89, \quad Y_3 = 44,$$
giving $$\mathbf{N}_3 = 89^3 + 44^3 = 790153 = 7.19.5941.$$

Step 3°.—Taking $X_3 = 89$, $Y_3 = 44$, giving
$$x_4 = 263385, \quad y_4 = -263384, \quad N_4 = x_4^3 + y_4^3;$$
$$X_4 = 526679, \quad Y_4 = 263384, \quad \mathbf{N}_4 = X_4^3 + Y_4^3,$$
and $\mathbf{N}_4 = N_1N_2N_3N_4$ as required.

17461. (Professor E. J. Nanson.)—If the chord PP′ of the conic S′ touches the conic S, show that the chord of contact of the second tangents from P, P′ to S touches $\Theta^2 S = 4\Delta F$.

Solution by A. M. Nesbitt, M.A.

If the second tangents from P and P′ to S meet at Q (1, 0, 0), we may take, as equations to S, S′,
$$S \equiv \Sigma x^2 - 2\Sigma y^2 = 0, \quad S' \equiv ax^2 + 2\Sigma fyz = 0.$$

By ordinary methods we find $\Delta = -4$, $\Theta = 4\Sigma f$; and the polar of Q is $x = y + z$.

Moreover, $F \equiv 4afx(x - y - z) - 4\Sigma(ghx^2) + 4\Sigma f, \quad \Sigma(fyz)$.

We have to show that the result of substituting $x = y + z$ in the proposed equation yields a perfect square.

Now this substitution makes $S = -4yz$, while
$$F = 4\{(hy - gz)^2 + yz(\Sigma f)^2\}.$$
Since $$\Theta^2 S/4\Delta = 4yz(\Sigma f)^2,$$
the polar of Q touches the proposed conic at the point $(g + h, g, h)$, and of course it would still touch it for any other axes or systems of co-ordinates.

17553. (Professor Neuberg.)—Une courbe Δ est rapportée à deux axes rectangulaires Ox, Oy. On projette un point quelconque M de Δ en P sur Ox, et le point P en Q sur la droite OM. Connaissant la tangente MT au point M de Δ, trouver la tangente QT′ en Q à la courbe Δ′ décrite par Q, et inversement.

Solution by C. M. Ross, B.A.

Let $y = f(x)$ be the equation of the curve Δ,
and $y' = f(x')$ that of Δ′.

The equation of OM is $Y = y/x.X$, and hence the equation of the perpendicular through P is $Y = -x/y(X - x)$.

The intersection of these two lines gives Q, and its co-ordinates are given by
$$x' = x^3/(x^2 + y^2) \quad \ldots\ldots\ldots\ldots (1),$$
$$y' = x^2y/(x^2 + y^2) \quad \ldots\ldots\ldots\ldots (2).$$

Again, since we know the tangent MT to Δ, we also know dy/dx; let $K = dy/dx$

From (1) and (2) we have
$$\frac{dy'}{dx'} = \frac{2y^3dx + x(x^2 - y^2)\,dy}{x[(x^2 + 3y^2)\,dx - 2xy\,dy]} = \frac{2y^3 + Kx(x^2 - y^2)}{x[x^2 + 3y^2 - 2Kxy]}.$$

Now the equation of the tangent QT′ to Δ′ is
$$Y - y' = (X - x')\,dy'/dx',$$
and, after some simplification, the equation becomes
$$Y[x(x^2 + 3y^2) - 2Kx^2y] = X[2y^3 + Kx(x^2 - y^2)] + x^3(y - Kx).$$

Remarque.—Soient (ρ, θ), (r, θ) les coordonnées polaires des points M, Q, et désignons par ρ', r' les dérivées de ρ et r par rapport à θ. On sait que ces dérivées sont egales aux sous-normales polaires des courbes Δ et Δ′. Or la relation $r = \rho\cos^2\theta$ donne
$$r' = \cos\theta(\rho'\cos\theta - 2r\sin\theta),$$
ce qui permet de construire r' quand on donne ρ'.

17706. (C. W. Adams.)—A stick is let vertically down into a cylindrical petrol-tank whose axis is horizontal. Show how to graduate the stick to indicate $\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$ and $\frac{7}{8}$ full.

Solution by the Proposer.

If d is the internal diameter, the depth h of petrol when its free surface subtends an angle θ at the axis, is given by
$$2h = d(1 - \cos\tfrac{1}{2}\theta).$$
When the cylinder is $\frac{1}{8}$ full, $\theta - \sin\theta = \frac{1}{4}\pi$. By a graph the approximate solution of this equation was found to be $\theta = 1{\cdot}772$. Now suppose $\theta + \delta\theta - \sin(\theta + \delta\theta) = \frac{1}{4}\pi$, where $\delta\theta$ is the small correction needed. Then $$\delta\theta = (\tfrac{1}{4}\pi - \theta + \sin\theta)/(1 - \cos\theta).$$
When $\theta = 1{\cdot}772$, $\delta\theta = -0{\cdot}0056464$ and $\theta + \delta\theta = 1{\cdot}7663536$.

When $\theta = 1{\cdot}7663536$, $\delta\theta = -0{\cdot}0000128$,
and hence $\theta = 101° 12' 13''$ to the nearest second.

Similarly the values of θ when the cylinder is $\frac{1}{4}$ and $\frac{3}{8}$ full are found to be $132° 20' 47''$ and $157° 12' 6''$.

Hence the required graduations expressed as decimals of the internal diameter are

0	0·401178	0·701987
0·182646	0·5	0·817354
0·298013	0·598822	1

17742. (H. D. Drury, M.A.)—The line joining the middle points of the diagonals of a quadrilateral inscribed in a circle, cuts the sides of the quadrilateral, or the sides produced, in four points, whose distances, taken in order, from the point of intersection of the line with the third diagonal are in continued proportion.

Solution by R. F. Davis, M.A.

Let ABCD be a cyclic quadrilateral; E, F, H the intersections of (BA, CD), (AD, BC), and (AC, BD) respectively. Draw BK equal and parallel to ED, then FK is parallel to the diameter of the quadrilateral (the late Dr. C. Taylor). Produce EB, EC to meet FK in b, c.

Since $\quad EA : ED = AC : BD = FA : FB$,

therefore $EA : FA = BK : FB$; and the angles EAF, KBF are equal; therefore the triangles EAF, KBF are similar. Also angle

$FEc = FEA - DEA = FKB - KBb = Ebc$ and $FE^2 = Fb.Fc$.

Then reduce radii vectores from E in ratio 1 : 2, &c.

17496. (Professor E. J. Nanson.)—Two tetrahedra ABCD, A′B′C′D′ are such that B′C′, C′A′, A′B′, D′A′, D′B′, D′C′ intersect DA, DB, DC, BC, CA, AB, respectively. Given ABCD and two opposite edges of A′B′C′D′, construct the remaining edges of A′B′C′D′.

Solution by C. V. L. Lycett.

Let us suppose the tetrahedron A′B′C′D′ drawn.

Let A′B′, C′A′, D′A′, B′C′, B′D′, D′C′ cut the sides of ABCD in L, M, N, Q, R, S respectively. Now suppose C′D′ and B′A′ are given.

Now Q and R lie in the plane B′C′D′; therefore QR cuts C′D′ in P_1, say.

Then P_1 is the intersection of C′D′ with the plane ADC.

Thus P_1 is known. Similarly find three other similar points P_2, P_3, and P_4; the intersections of C′D′ with the plane BDC, A′B′ with ABC and ABD respectively.

The problem is now reduced to that of inscribing a skew quadrilateral MNQR in the quadrilateral ACBDA such that its sides pass through P_1, P_2, P_3, and P_4.

This can be solved in a similar manner to the corresponding problem in two-dimensional geometry.

Hence we may assume that M, N, Q, and R are known.

Now the plane through MQ and B′A′ will cut C′D′ in C′. C′M will cut B′A′ in A′, and A′N or B′R will cut C′D′ in D′.

Hence A′B′C′D′ has been completely determined.

17716. (C. M. Ross, M.A.)—Perpendiculars are drawn from any point on the curve $x^{\frac{2}{3}} + y^{\frac{2}{3}} = a^{\frac{2}{3}}$ to meet the co-ordinate axes at A and B. Show that the envelope of the parabolas touching the axes at A and B is $\qquad x^{\frac{2}{7}} + y^{\frac{2}{7}} = a^{\frac{2}{7}}$.

Solutions (I) *by* T. P. Trivedi, M.A., LL.B., Professor K. J. Sanjána, M.A., *and the* Proposer; (II) *by* W. N. Bailey.

(I) Any point on the curve $x^{\frac{2}{3}} + y^{\frac{2}{3}} = a^{\frac{2}{3}}$ may be taken to be

$$x = a\cos^3\theta, \qquad y = a\sin^3\theta.$$

Hence the points A and B are $(a\cos^3\theta, 0)$, $(0, a\sin^3\theta)$. The equation of the parabola touching the axes at A and B is

$$x^{\frac{1}{2}}\cos^{-\frac{3}{2}}\theta + y^{\frac{1}{2}}\sin^{-\frac{3}{2}}\theta = a_{\frac{1}{2}} \quad \ldots\ldots\ldots\ldots\ldots\ldots (1).$$

Differentiating and simplifying, we get

$$\sin\theta/\cos^{\frac{5}{2}}\theta . x^{\frac{1}{2}} - \cos\theta/\sin^{\frac{5}{2}}\theta . y^{\frac{1}{2}} = 0;$$

therefore

$$x^{\frac{1}{2}}\cos^{-\frac{7}{2}}\theta - y^{\frac{1}{2}}\sin^{-\frac{7}{2}}\theta = 0, \text{ or } x^{\frac{3}{14}}\cos^{-\frac{3}{2}}\theta - y^{\frac{3}{14}}\sin^{-\frac{3}{2}}\theta = 0 \ldots (2).$$

From (1) and (2),

$$\cos^{-\frac{3}{2}}\theta = a^{\frac{1}{2}}/[x^{\frac{3}{14}}(x^{\frac{2}{7}} + y^{\frac{2}{7}})], \quad \sin^{-\frac{3}{2}}\theta = a^{\frac{1}{2}}/[y^{\frac{3}{14}}(x^{\frac{2}{7}} + y^{\frac{2}{7}})];$$

so that $\qquad \cos^2\theta + \sin^2\theta = 1/a^{\frac{2}{3}}[(x^{\frac{2}{7}} + y^{\frac{2}{7}})^{\frac{4}{3}}(x^{\frac{2}{7}} + y^{\frac{2}{7}})]$,

i.e., $\qquad x^{\frac{2}{7}} + y^{\frac{2}{7}} = a^{\frac{2}{7}}$.

(II) We have to find the envelope of

$$\sqrt{(x/\alpha)} + \sqrt{(y/\beta)} = 1 \ldots\ldots\ldots\ldots\ldots\ldots (1),$$

subject to the condition $\quad \alpha^{\frac{2}{3}} + \beta^{\frac{2}{3}} = a^{\frac{2}{3}} \ldots\ldots\ldots\ldots\ldots\ldots (2).$

Considering β as a function of α defined by (2), we have

$$\alpha^{-\frac{1}{3}} + \beta^{-\frac{1}{3}}\, d\beta/d\alpha = 0,$$

and for the envelope, from (1),

$$x^{\frac{1}{2}}/\alpha^{\frac{3}{2}} + y^{\frac{1}{2}}/\beta^{\frac{3}{2}}\, d\beta/d\alpha = 0.$$

Hence $\qquad x^{\frac{1}{2}}/\alpha^{\frac{7}{6}} = y^{\frac{1}{2}}/\beta^{\frac{7}{6}}$,

or $\qquad x^{\frac{2}{7}}/\alpha^{\frac{2}{3}} = y^{\frac{2}{7}}/\beta^{\frac{2}{3}} = (x^{\frac{2}{7}} + y^{\frac{2}{7}})/a^{\frac{2}{3}} = \lambda$, say.

Then, from (1), $\qquad \lambda^{\frac{3}{4}}(x^{\frac{2}{7}} + y^{\frac{2}{7}}) = 1$,

so that $\qquad (x^{\frac{2}{7}} + y^{\frac{2}{7}})^{\frac{7}{4}} = a^{\frac{1}{2}}$.

Hence the required envelope is

$$x^{\frac{2}{7}} + y^{\frac{2}{7}} = a^{\frac{2}{7}}.$$

17710. (Norman Alliston.)—Find a rational right-angled triangle having all three sides of the form $x^2 - 1$.

Solution by W. J. Ashdown.

By writing down the squares of the series 3, 8, 15, 24, &c., and taking the first differences, it is readily found that

$$195^2 - 168^2 = 9801 = 99^2.$$

Therefore $\qquad (10^2-1)^2 + (13^2-1)^2 = (14^2-1)^2$.

This is the lowest integral solution.

17530. (Professor H. Langhorne Orchard, M.A., B.Sc.)—Sum to n terms the series $\quad \frac{1}{2} + \frac{1}{12} + \frac{1}{30} + \frac{1}{56} + \ldots$.

Partial Solution by D. Biddle.

This series is one, the summation of which, to particular values of n, is desiderated in a remark appended to my own Question 17332, solved by Mr. Bailey in *The Educational Times* of June 2, 1913, in which also the present Question appears. (See also Vol. xxiv, New Series, p. 102.) And it consists of the alternate terms of a series, the sum of which, to any n terms, is well known, namely,

$$\Sigma\frac{1}{n(n+1)} = \frac{n}{n+1}.$$

The 1st, 3rd, 5th, ..., terms of the latter constitute the series now in question, whilst the 2nd, 4th, 6th, ..., terms form the complementary series. We can consider the terms of the known series in pairs—

$$\overset{(1)}{\frac{1}{1.2} + \frac{1}{2.3}} + \overset{(2)}{\frac{1}{3.4} + \frac{1}{4.5}} + \overset{(3)}{\frac{1}{5.6} + \frac{1}{6.7}} + \overset{(4)}{\frac{1}{7.8} + \frac{1}{8.9}} + \overset{(5)}{\frac{1}{9.10} + \frac{1}{10.11}} + \ldots.$$

The members of the several pairs may be represented otherwise, as follows—

$$\overset{(1)}{\frac{1}{3} \pm \frac{1}{6}}, \quad \overset{(2)}{\frac{1}{15} \pm \frac{1}{60}}, \quad \overset{(3)}{\frac{1}{35} \pm \frac{1}{210}}, \quad \overset{(4)}{\frac{1}{63} \pm \frac{1}{504}}, \quad \overset{(5)}{\frac{1}{99} \pm \frac{1}{990}}, \quad \overset{(6)}{\frac{1}{143} \pm \frac{1}{1716}}, \quad \ldots,$$

or $\quad \frac{2\pm1}{1.2.3}, \quad \frac{4\pm1}{3.4.5}, \quad \frac{6\pm1}{5.6.7}, \quad \frac{8\pm1}{7.8.9}, \quad \frac{10\pm1}{9.10.11}, \quad \frac{12\pm1}{11.12.13}, \quad \ldots.$

Here the portion before the alternative sign in each term is represented by $\dfrac{1}{(2n-1)(2n+1)}$, and the sum of these portions, to n terms, is known to be $\dfrac{n}{2n+1}$. The portions after the alternative sign have also been summed to *infinity*, making

$$\log_e 2 - \tfrac{1}{2} = {\cdot}69314718 - {\cdot}5 = {\cdot}19314718;$$

therefore $\qquad \displaystyle\sum_{n=1}^{n=\infty}\frac{1}{2n(2n-1)} = \log_e 2,$

which is the sum to infinity of the series in the Question.

Also $$\sum_{n=1}^{n=\infty} \frac{1}{2n(2n+1)} = 1 - \log_e 2,$$

this being the complementary series. [Rest in *Reprint*.]

12940. (Professor WHITE.)—Prove that

$$\int_2^1 \frac{x^{a-1}+x^{-a}}{1+x}\,\frac{dx}{x} = \log(\tan \tfrac{1}{2}a\pi), \quad \text{when} \quad a > 0 \text{ and } < 1.$$

Solution by W. N. BAILEY.

There is evidently a mistake in this Question, for by changing a into $(1-a)$ the definite integral remains unaltered while the right side changes sign.

It is possible that the required integral should be

$$\int_0^1 \frac{x^{a-1}-x^{-a}}{1+x}\,\frac{dx}{\log x} = \log(\tan \tfrac{1}{2}a\pi),$$

which is given in Williamson's *Integral Calculus*. It is there proved that if $0 < a < 1$, $$\int_0^\infty \frac{x^{a-1}}{1+x}\,dx = \frac{\pi}{\sin a\pi}.$$

Now, on putting $x = 1/y$, we find that

$$\int_1^\infty \frac{x^{a-1}}{1+x}\,dx = \int_0^1 \frac{y^{-a}}{1+y}\,dy,$$

so that $$\int_0^1 \frac{x^{a-1}+x^{-a}}{1+x}\,dx = \frac{\pi}{\sin a\pi}.$$

Integrating with respect to a, we have

$$\int_0^1 \frac{x^{a-1}-x^{-a}}{1+x}\,\frac{dx}{\log x} = \log(\tan \tfrac{1}{2}a\pi) + c.$$

Putting $a = \frac{1}{2}$, we find that $c = 0$, if a lies in any interval within $(0, 1)$.

17556. (W. N. BAILEY.)—A chord PQ of a parabola is normal at P, and the circle on PQ as diameter meets the curve again at R. If the normal at R meets PQ at T, prove, geometrically, that the projections of TR and TQ on the axis are each equal to the latus rectum.

Solution by C. V. L. LYCETT.

Let PR, RT, and PQ cut the axis in X, Y, and Z.

Draw RL, TL′, PN, and QN′ perpendicular to the axis.

Then PQ and PR are equally inclined to the axis, and

NZ = XN = 2AS = LY;

therefore YZ = LN, TL′/PN = L′Z/NZ, TL′/RL = YL′/LY;

therefore L′Z/L′Y = RL/PN;

therefore L′Z/YZ = RL/(RL + PN) = LX/LN;

therefore L′Z = LX;

therefore LL′ = XZ = the latus rectum.

Also, since PQ and PR are equally inclined to the axis, their mid-points are equidistant from the axis;

therefore PN − RL = QN′ − PN;

therefore XN + NZ = LX + ZN′;

therefore XZ = LX + ZN′ = L′Z + ZN′;

therefore L′N′ = XZ = the latus rectum.

Mr. BAILEY writes:—The first part of the question may be proved thus: Let RL meet the parabola again at S. Then, by Frégier's theorem, ST must be parallel to the axis, since RS and the line through R parallel to the axis are two perpendicular chords, and so are PR, RQ.

Hence RL = LS = L′T, and LL′ = 2LY = latus rectum.

QUESTIONS FOR SOLUTION.

17765. (Lt.-Col. ALLAN CUNNINGHAM, R.E.)—Show that every number N can be expressed in the form $N = \frac{1}{6}(x^3+y^3-2z^3)$ [N, x, y, z positive integers]. In what cases is this expression unique, and in what cases can N be expressed in this form in more than one way? Give numerical examples of each.

17766. (H. D. DRURY, M.A.)—Through the angles of a triangle ABC lines are drawn intersecting in a point O and cutting the opposite sides BC, CA, AB in D, E, F respectively. Show that the join of the mid-points of BC and AD and the corresponding joins for the other two sides meet in a point O′. If O is the orthocentre, then O′ is the Lemoine point. If D, E, F are the points of contact of the in-circle with the sides, then O′ is the in-centre.

17767. (C. W. ADAMS, M.A.)—In obtaining the difference in height x between two points A and B in the same vertical plane, the theodolite telescope is placed successively at points E, F in that plane, its projection on the ground being at D and C respectively. The elevations of A and B from E are α and β; from F they are δ and ϵ. The depression of C from E is γ, and the lengths CD, DE, CF are a, b, and c respectively. Obtain an expression for the horizontal projection ν of EF, and an expression for x in terms of ν and the given quantities.

17768. (A. BREBNER.)—FPR is a triangle right-angled at P. FP = 10 in., ∠PFR = 32° 40′. Q is taken on PR such that ∠PFQ = 25° 30′. Find (by calculus) a point M in QR such that FM is the mean distance between F and all the points in QR.

17769. (C. E. HILLYER, M.A.)—(i) A, B, C are three points on a conic, and T is any point in the plane. TA, TB, TC meet the curve again in a, b, c respectively. Any transversal through T meets BC in P, CA in Q, and AB in R. Prove that Pa, Qb, Rc meet in a point U on the curve. (ii) A conic is inscribed in a triangle ABC. Through any point T in the plane a transversal is drawn meeting BC, CA, AB in P, Q, R respectively. If AT meet the second tangent to the conic from P in a point D, and E, F be similarly constructed, prove that D, E, F lie on a straight line which also touches the conic. Point out the connexion of the above with Pascal's and Brianchon's theorems. Also examine particular cases, *e.g.*, in (ii) when the conic is a circle and T is at the orthocentre of ABC, and the transversal PQR also passes through the in-centre, then DEF touches the nine-point circle.

17770. (C. M. ROSS, M.A.)—Evaluate the determinant of the $(n+1)$-th order:

$$\begin{vmatrix} 1 & 1 & 0 & 0 & \dots & 0 \\ x & 1 & 1 & 0 & \dots & 0 \\ x^2 & 1 & 2 & 1 & \dots & 0 \\ x^3 & 1 & 3 & 3 & \dots & 0 \\ \dots & & \dots & \dots & \dots & \dots \\ x^n & 1 & n & \dfrac{n(n-1)}{2!} & \dots & 1 \end{vmatrix}.$$

17771. (A. W. H. THOMPSON.)—Two tetrahedra are inversely similar. Show that (i) planes through the vertices of one drawn parallel to the faces of the other are co-incident; (ii) lines through the vertices of one drawn perpendicular to the faces of the other are co-regular.

17772. (E. R. HAMILTON, B.Sc.)—Prove the formula

$$\sum_{r=1}^{n} r^p = n \sum_{r=1}^{n} r^{p-1} - \sum_{t=1}^{n-1} \left\{ \sum_{r=1}^{t} r^{p-1} \right\},$$

where p may have any value, integral or fractional, except -1.

17773. (R. F. DAVIS, M.A.)—A circle is given and a fixed point within it. Find the envelope of a variable chord the joins of whose extremities to the point are equally inclined to a given fixed direction.

17774. (T. MUIR, LL.D.)—Resolve into factors

$$\begin{vmatrix} 1 & a & a^2 & a^3 & a^4 & a^5 \\ 1 & b & b^2 & b^3 & b^4 & b^5 \\ 1 & c & c^2 & c^3 & c^4 & c^5 \\ c^5 & c^4 & c^3 & c^2 & c & 1 \\ b^5 & b^4 & b^3 & b^2 & b & 1 \\ a^5 & a^4 & a^3 & a^2 & a & 1 \end{vmatrix}.$$

17775. (N. SANKARA AIYAR, M.A.)—(i) Discuss the convergence of the series $$\sum_{r=1}^{\infty} \frac{x^n (n+1)(n+2)(n+3)\dots(n+r)}{(p+1)(p+2)(p+3)\dots(p+r)}.$$

When it is convergent, find its sum.

(ii) Solve $$\int_0^{v_0} \left[\frac{x^2 y_1^2 + 1}{v_0^2 - x^2}\right]^{\frac{1}{2}} dx = k, \quad \text{where} \quad y_1 \equiv \frac{dy}{dx}.$$

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17776. (*Communicated by* C. H. Bennett.)—If there are p letters a, q letters b, and r letters c, find the number of ways in which they can be placed in a circle. (Set in Cambridge Senior Local paper, 1906.)

17777. (*Communicated by* J. Blaikie, M.A.)—Four boys gathered nuts and agreed to divide them equally in the morning. In the night one boy got up, gave one nut to the pet monkey of the house, and departed, taking with him exactly one-fourth of the remainder of the nuts. Then another awoke, gave a nut to the monkey, took one-fourth of the remainder, and departed. The third and fourth boys acted likewise. Find the original number of nuts, assuming it to be the least possible number that would allow this to be done. Find also the series of possible values, supposing this restriction to be removed.

17778. (Professor Neuberg.)—Soient A le sommet, F le foyer, et M un point quelconque d'une parabole. On projette M en N sur la bissectrice de l'angle AFM. Trouver l'aire d'un secteur décrit par le rayon vecteur FN.

17779. (E. G. Hogg, M.A.)—If along the internal bisector of the angle A of the triangle ABC lengths AS, AH be cut off equal to AB and AC respectively, and if an ellipse be described with foci S and H to touch AB and AC, then the major axis of the ellipse is equal to BC.

17780. (A. M. Nesbitt, M.A.)—The external bisectors of the angles A, B, C of a triangle meet the circum-circle in P, Q, R. Prove that, with an obvious convention as to sign, the algebraic sum of the arcs AP, BQ, CR is zero. Show also that if BQ, CR meet in T, and TP cut the circle in S, then will TS be a mean proportional to SB, SC.

17781. (Professor Srinivasan, M.A.)—In a triangle ABC the median from A, the bisector of B, and the altitude from C, are equal to one another. Is the triangle ABC equilateral?

17782. (Professor K. J. Sanjána, M.A.)—A chord PQ of a parabola meets the tangent at the vertex in O, and is such that PO is to OQ in a given ratio. Prove that the envelope of PQ is two parabolas. Also find the envelope when for "tangent at the vertex" we read "directrix."

17783. (S. Pollard.)—If $L_1, M_1, N_1, \ldots$, are the co-factors of $l_1, m_1, n_1, \ldots$, in $\Delta = \begin{vmatrix} l_1 & m_1 & n_1 \\ l_2 & m_2 & n_2 \\ l_3 & m_3 & n_3 \end{vmatrix}$, then if $\Delta = 0$, we have

$$\Delta' = \begin{vmatrix} \frac{l_1}{L_1} & \frac{m_1}{M} & \frac{n_1}{N_1} \\ \frac{l_2}{L_2} & \frac{m_2}{M_2} & \frac{n_2}{N_2} \\ \frac{l_3}{L_3} & \frac{m_3}{M_3} & \frac{n_3}{N_3} \end{vmatrix}.$$

NOTICE TO CORRESPONDENTS.

It is requested that all Mathematical communications should be addressed to the Mathematical Editor,
2 Newton Street, Kingsway, W.C.

THE LONDON MATHEMATICAL SOCIETY.

Thursday, June 11, 1914.—Prof. A. E. H. Love, F.R.S., President, in the chair.

Mr. J. P. Clatworthy was nominated for membership.

The President announced the award of the De Morgan Medal to Professor Sir Joseph Larmor, M.P., F.R.S., for his researches in Mathematical Physics.

Mr. G. H. Hardy communicated "Some Theorems discovered by Mr. S. Ramanujan."

Prof. Hobson read his paper, "Theorems relating to Functions defined implicitly, with applications to the Calculus of Variations."

Lt.-Col. Cunningham communicated a result, due to Mr. R. E. Powers, that the Mersenne's number $2^{107}-1$ is prime; the result was announced by cable, and is contrary to Mersenne's own assertion.

The following papers were communicated by title:—

"Proof of the general Borel-Tauber Theorem": G. H. Hardy and J. E. Littlewood.

"A Problem of Diophantine Approximation": R. H. Fowler.

"On the Differentiation of a Surface-integral at a Point of Infinity": J. G. Leathem.

"Free and forced Longitudinal Tidal Motion in a Lake": J. Proudman.

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THE

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AND

Journal of the College of Preceptors.

Vol. LXVII.] New Series, No. 640. AUGUST 1, 1914.

Published Monthly, price, to Non-Members, 6d.; by Post, 7d. Annual Subscription, 7s.

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MEMBERS' MEETINGS.

28th September, 1914. — Conversazione. The Guests will be received by Sir PHILIP and Lady MAGNUS.

14th October, 1914. — Lecture entitled "Some Features of Ancient Greek Education," with lantern slides. By FRANK ROSCOE, M.A.

3rd November, 1914.—Lecture on Child Education, with moving pictures. By Dr. MARIA MONTESSORI.

9th December, 1914. — Lecture entitled "About Great Pictures," with lantern illustrations. By RUDOLPH DE CORDOVA.

20th January, 1915. — Lecture entitled "Pure Fun," with lantern illustrations and charcoal sketches. By WILL OWEN.

17th February, 1915. — Lecture entitled "The Fairyland of Nature," with lantern illustrations and moving pictures. By RICHARD KEARTON, F.Z.S., F,R.P.S.

17th March, 1915.—Song-Lecture entitled "Three Centuries of English Song." By Madame BERTHA MOORE.

MEMBERS' DINNER.

Arrangements will be made for a Dinner, for Members and their Friends, to take place in the early part of January, 1915.

LECTURES FOR TEACHERS.

The Second Course of Lectures (Forty-second Annual Series), by Prof. J. ADAMS, M.A., B.Sc., LL.D., F,C.P., on "Problems in School Practice," will commence on Thursday, the 1st of October, at 7 p.m.

The purpose of the course is to present the principles of teaching practice in the way most suited to their application to the ordinary work of a school. In the ultimate resort every teacher must apply for himself the principles of his profession, but he may be greatly helped by observing how others have dealt with the problems he must face. To this end the lectures will be very copiously illustrated by references to the teaching of the various subjects of the ordinary school course, while particular attention will be given to those subjects that must be taught by all teachers who are not specialists. The lecturer will base his suggestions on the state of things actually existing in the schools of the present day.

For Syllabus, see page 372.

EXAMINATIONS.

Diplomas. — The Summer Examination of Teachers for the Diplomas of the College will commence on the 31st of August, 1914.

Practical Examination for Certificates of Ability to Teach.—The next Practical Examination will be held in October, 1914.

Examination of Foreign Teachers for Certificates of Proficiency in English.—The next Examination will commence on the 3rd of September, 1914.

Certificate Examinations. — The Christmas Examination for Certificates will commence on the 7th of December, 1914.

Lower Forms Examinations. — The Christmas Examination will commence on the 7th of December, 1914.

Professional Preliminary Examinations.—These Examinations are held in March and September. The Autumn Examination in 1914 will commence on the 8th of September.

Inspection and Examination of Schools.—Inspectors and Examiners are appointed by the College for the Inspection and Examination of Public and Private Schools.

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CONTENTS.

Page

Leader: Organized Freedom 363

Notes 364

No Education Bill—A Survey—Pensions—A Salary Scandal—The Register—Expulsion—Country Holidays—Games—The Kinema—Safety Valves—The League of the Empire—The Society of Education.

Summary of the Month 366

The Teaching of English in Junior Forms. II: By the Hon. Mrs. Franklin 367

Poetry: Fin Juillet 370

The Lighter Side of Pedagogy 370

Prize Competition 371

Current Events 371

The Deputation to Mr. Pease 373

Page

Sane Sex Teaching. IV: In Girls' Schools. By Dr. Helen Webb 375

Reviews 377

The Future of Education (Egerton); In Defence of What Might Be (Holmes); Overseas; Biology of Sex (Galloway); History in Schools—Board of Education's Suggestions; Animal Life by the Seashore (G. A. and C. L. Boulenger); Wealth (Cannan).

General Notices 380

Publications Received 381

Mathematics 384

Class List of Candidates who have passed the Midsummer Certificate and Lower Forms Examinations of the College of Preceptors 389

Careers for Girls. IV: Journalism. By L. Keyser Yates 402

"Petites Françaises." By Marion Cahill 403

The Educational Times.

ORGANIZED FREEDOM.

TWICE during the last month has Sir Philip Magnus, President of the College of Preceptors, stood forward to maintain the need of freedom as well as of organization in secondary education. On the first occasion he was presiding over the Annual Meeting of the Secondary Schools Association, and he spoke emphatically of the necessity for a more systematic organization of secondary education. At the same time he would see, with regret, the elimination of the private school. The needs of children are various, and there must be a corresponding variety in the provision. There are probably some ten thousand private schools in the country. "The majority of these," says Sir Philip Magnus, "are undoubtedly worthy of support, and should receive in some form or other recognition by the State." That is to say, the private schools must be recognized as contributing to the provision of national education, and they must retain, in a great measure, their freedom. This is one of the problems that the Minister of Education is called upon to solve; to bring all secondary schools within an organization without lessening their powers of initiative and their sense of freedom.

The second of the two occasions that we have referred to was when Sir Philip Magnus, in his capacity as member of Parliament, introduced to Mr. Pease a deputation representing the Joint Committee established by the College of Preceptors and the Private Schools Association. The object of the deputation was to bring to the notice of the Minister and the officers of the Board of Education information with regard to private schools and to ask for their recognition. In the early part of the year Sir L. A. Selby-Bigge met a similar deputation with the remark that the Board had no knowledge of private schools. Thereupon the College of Preceptors set about making an inquiry as to the resources of private schools. The deputation last month laid the results of this inquiry before the Board. It has proved a useful piece of work, and the Board can no longer plead entire ignorance.

That the Board of Education—a body charged by Parliament with the duty of aiding the education of the country—should ever have been able to plead ignorance of the existence of a group of schools estimated in some quarters to reach the number of 15,000, is partly the the fault of the schools themselves. In the past they have insisted, and some of them still insist, in hiding their light under a bushel. It is a sign full of promise for the future of secondary education in this country that the representatives of this group of schools should now come out into the open and claim the right of sharing in the help that the Board can give.

Mr. Stanley Maxwell, on behalf of private schools, asked for inspection by the Board of Education. This is the significant and outstanding fact about the deputation. Inspection is recognized as a benefit and is asked for. No greater justification could be sought in favour of the thorough and valuable system of inspection that the Board have built up than that a group of schools should voluntarily ask for this inspection. Mr. Bruce, to whom the credit of having started this organization some fifteen years ago is usually given, may well feel that his work has gained an appropriate reward. The inspection is felt to be both genuine and thorough, intelligent and sympathetic, helpful and encouraging, and is consequently demanded as an aid to maintaining a secondary school in a condition of efficiency.

Coupled with the request that all schools should be inspected was the rider that this should be done without cost to the school. It is the very completeness of the Board's inspection that makes it costly. It is quite certain that if private schools are called upon to pay, a very large number will be compelled to go without inspection, to the loss of themselves and of the pupils. Mr. Pease has on several occasions made his view clear that in the interests of the nation generally all schools should be inspected in

order that parents may be protected against inefficiency, so far as inspection can effect this. We have no doubt that Mr. Pease, supported by Lord Haldane, would make inspection universal and free, if it were immediately possible. But facts are stubborn things. In the first place, there is the Treasury to be convinced; and secondly, there is the necessary machinery to be perfected. If the Board, with their present staff, can inspect about a thousand schools, a simple process of multiplication will give the staff necessary for the inspection of ten thousand schools. It is the custom in England to move cautiously, and we believe the result of this deputation will be that the Board will make strong representations to the Treasury, who will agree to a gradual augmentation of the inspecting staff and to the clerical staff that deals with reports; and that the inspection of private schools, which has already begun, will continue with gradually increasing rapidity. No Minister of Education is likely to add ten thousand schools to his Department at one stroke.

The private schools have asked for inspection: that is the main point. And they will get it, we believe, gradually. The problem before the Board is to make that inspection sufficiently exhaustive for the purpose, without making it too complicated; to make it helpful to the schools and a guidance to parents; and at the same time to leave to the schools a great measure of independence and liberty. We do not want all secondary schools to be after one pattern. We are not yet all agreed upon any one pattern. We want variety. The inspection must aim at encouraging variety. Certainly schools must be organized; but their condition must be one of organized freedom.

NOTES.

No Bill.

Mr. Asquith has now stated definitely that no Education Bill will be introduced into Parliament during this Session. This is a clear indication that, in the opinion of the Cabinet, public feeling is not yet united on the necessity of further organization, with its consequence of further expenditure. If an Education Bill were introduced, Parliamentary discussion and criticism would still be directed to minor points connected with single-school areas and the like. There is no overwhelming public opinion to say to the Government: "The educational facilities of this country, though excellent in some departments, are makeshift, inefficient, and starved in other departments. We call upon you to create a sound system, and we are prepared to pay the cost, deeming the education of the children the first charge upon our income." Public opinion, according to Mr. Pease, is not yet ripe for a measure of universal inspection. For the present, then, we must be content to work on, underpaid, and sometimes ill-directed. There is plenty of scope for individual effort, for it is generally admitted that our pedagogic practice falls far short of our theory.

A Survey.

The deputation to Mr. Pease on July 9 did not convince the Minister of Education of the necessity of a general survey of the existing provision for secondary education. The Local Authorities have power to make such a survey, each in its own area; but the fact brings us no nearer to the desired end. There is no likelihood that the localities will undertake this investigation. Even if they did so there would be no uniformity in their methods, and we should still be without the information required. If the Board of Education saw their way to the inclusion of all educational institutions in their official knowledge, they would readily admit, we are sure, that a preliminary survey was essential to further action. The pity is that at present the way of the Board is not clear, and we must wait still longer before any effort is made to bring the beneficial influence of the Board to bear on the many thousands of schools that give, or purport to give, secondary education. We are convinced that a general survey is the duty of the Board, and that it cannot be effectively done by the Local Authorities.

Pensions.

Another point that the deputation pressed upon Mr. Pease was the necessity of including teachers in private schools in the pensions scheme. Here, again, there was no enthusiasm in the reply. Mr. Pease personally would, we are quite sure, like to do much. But Mr. Pease officially, with the Treasury and Parliamentary opinion holding him back, can do little. The matter hardly admits of argument. Pensions are to be given to teachers in State secondary schools because, as is frankly recognized, salaries do not permit of a suitable provision for old age. It is admitted that, if the conditions of service are not improved, there will be a further falling off in the supply of teachers. Pensions are not given because the State has a personal feeling for the teacher, but because the State recognizes (to a limited extent) the duty of providing education; and it finds the payment of pensions one of the necessary conditions. Teachers in private schools are no better paid than teachers in State schools. They are just as unable to make provision for old age. The need of pensions is just as urgent. The matter must be pressed again and again, until public opinion shall be convinced. A report of the proceedings, written by a member of the deputation, will be found on another page.

A Salary Scandal.

The Chairman of the Assistant Masters' Association writes to the press to make public a case of gross injustice to an assistant master. We have no hesitation in describing the incident as a "gross injustice," and yet we can find no one to blame except that intangible abstraction, the British Public. The facts are these: an assistant master was appointed to a post in a Welsh county school, four years ago, at a salary of £160. There was no salary scale, but it was stated at the time of the appointment that "the question of increase may be considered." The

governors have now informed the master that, owing to the condition of the school finances, he must be prepared to accept an immediate reduction of £30. It is stated that the capacity of the master is not in question; it is a matter of finance only. This we can readily believe. The position of this school is by no means exceptional among the Welsh county schools. The income of the governors is a fixed sum, and they have no power to spend beyond their income. The grants from the county and from the Board of Education are fixed. There is no elasticity anywhere. When there is no money, the salaries cannot be paid. It is the national conscience that needs awakening.

The Register.

Preparations are already being made for printing the first edition of the Register of Teachers. If there are any of our readers who have not yet sent in their applications we advise them to do so at once, in order that their names may be included in the first issue. The roll of "great names" grows rapidly; the leaders among teachers and those in high places have shown no hesitation in asking for inclusion in a Register that everyone wishes to make as complete as possible; but it is believed that some of the more modest and retiring are still doubting whether it is worth while to apply for registration. It is worth while, not necessarily for any individual benefit, but because we want the Register to be a standing proof of the solidarity of teachers. The Council of the College of Preceptors has already urged upon all members the advisability of registering. The machinery is simplicity itself. It is only necessary to write to the Secretary of the Registration Council, 2 Bloomsbury Square, W.C., and to ask for a form. The form filled up (in the case of teachers applying under temporary conditions), with one signature to guarantee service, registration follows automatically.

Expulsion.

The power of expelling a pupil from school, should the necessity arise, is one that must be maintained in the interests of the schools. Lately an aggrieved mother has, through the press, called upon the nation to share her annoyance because her son was expelled from Eton. The Head Master remained firm and was not to be drawn into a newspaper controversy. In his letter to the mother, sent by her to the newspapers, Dr. Lyttelton said: "It is not from caprice or because I enjoy doing so that I have sent your son away, but because I am quite convinced it is my duty. When this is the case no amount of worrying will make me relax my decision." This is the attitude of the strong Head Master, and it drew from the officers of the "Duty and Discipline Movement" a letter in which they expressed their thanks to the Head Master of Eton for "so courageously upholding the principles of duty and discipline." The power of expulsion must remain. It is often said that only in secondary schools does this power exist; but it is to be found in elementary schools also, though in the latter case it is effected through the instrumentality of a police magistrate.

Country Holidays.

We have received strong appeals for subscriptions to the Children's Country Holiday Fund. The Chairman of the London County Council points out how much is already done for children in London. The rate-payer, through the County Council, makes considerable provision for the children's physical well-being. There are organized games, regular physical exercises, playground classes, school journeys, open-air schools, and medical supervision. The parks and open spaces provide opportunities for healthy recreation. All these go to show that the national conscience, under the heading of expenditure on education, includes provision for the physical well-being of the children. But at present no one suggests that the rate-payer should make himself responsible for a fortnight's holiday in the country for each child. Yet such a holiday is an immense boon to the child, and consequently to the nation, the general health of which depends upon the health of each individual. The Country Holiday Fund has done very beneficial work. Increased subscriptions are asked for, and should be addressed to the Earl of Arran, 18 Buckingham Street, Strand, W.C.

Games.

It is satisfactory to note a growing disposition on the part of governing bodies and Education Committees to consider "the whole child" in framing their financial estimates. The position that day schools exist to give intellectual education alone is no longer tenable. In former days, not very long ago, the boys (and less often the girls) insisted upon games; but for the most part they had to organize them, and provide the equipment out of their own or their parents' pockets. No school is now held to be doing its whole duty to its pupils, if the governing body does not see that adequate space for games is provided and that a grant is given towards equipment. The amount of the grant that is necessary must depend partly upon the income of the parents. But there are still some governing bodies which take no responsibility for games. We write this Note in the hope of persuading them to the view that their duty is to provide for the whole growth of the child, in the physical no less than in the intellectual sphere.

The Kinema.

Film-makers are showing great activity in the educational field, but, so far as we can judge by the results, their educational advisers have not been happy or else the advice given has not been followed. At a recent meeting of the Association of Science Teachers, which was held at Girton College, Mrs. J. T. Wilson made the same charge against the producers of films that we have in previous issues pressed upon them. They are very busy making films; they are spending money freely; they offer catalogues of

what are called educational films; and yet, as Mrs. Wilson said, "these are certainly not educational from most teachers' point of view." A subject of educational interest may be valueless unless it is treated from the educational standpoint. "The kinematograph," added Mrs. Wilson, "might be of real educational value if teachers were consulted." That the matter has not been taken up more actively by Education Authorities is, in our opinion, entirely due to the fact that the films are produced merely as pretty or "interesting" pictures, and without any knowledge of what is really wanted if moving pictures are to be adopted as an integral part of education.

Safety Valves.

CONTENTMENT with the position in which we shall be placed has long been taught as a part of Christian ethics. Discontent usually comes from the feeling that some unreasonable barrier is interposed between a man and the opportunity of exercising his powers. This view was well expressed by Lord Moulton, who, in opening a new boys' school and technical institute the other day at Woking, said that the most dangerous class to the community was that which could be in a better position than it was, and knew it. "Each individual," he said, "should be able to climb as high up the hill of difficulty as his wind and legs would take him. He would not then feel against fate the bitter anger of the man who knew he could have developed himself had his powers been given the opportunity." Lord Moulton thought that such institutions as the one he was then opening served as safety valves. That is the reasonable view to take. Opportunities for education should be provided within the reach of all. It is not everyone who has the power to make use of them. Those who have will do so, to their own advantage and to that of the community.

The League of the Empire.

THE Annual General Meeting of the League of the Empire was held last month at the Caxton Hall. A large number of Overseas teachers and administrators were present, as well as representatives from Associations in England that unite in the movement. Of these Associations the College of Preceptors is one. Sir Philip Hutchins took the chair in the early part of the meeting, during the unavoidable absence of the Earl of Meath, whose arrival was delayed. Sir Horace Hutchins presented the annual report and pointed out the continued growth of the movement and its value in promoting a sense of solidarity between members residing in different parts of the Empire. The membership of teachers and of teachers' associations was especially desired, because it was through the schools that the feeling of union could best be developed. An invitation was given to the League to meet in Toronto in 1916, and a resolution accepting this invitation was moved by the Head Master of Winchester College and seconded by the Chairman of the Education Committee of the London County Council. In the evening a reception of members was held.

The Society of Education.

THE Society of Education, the formation of which has been promoted by the Teachers' Guild, has now, as we learn from the *Teachers' Guild Quarterly*, been established. Canon Masterman is the Chairman, and a provisional Committee has been nominated. An inauguration meeting will probably be held towards the end of October. The aim of the Society is expressed in the following paragraph, which we quote from the *Quarterly*:

> Until bursaries and scholarships can be founded to assist educational research the best thing to be done is to collect and collate all the various pieces of excellent work which are being done by psychologists, administrators, and others working at educational questions. It is only by this sort of combined action that any true science of education can really be developed. Teachers, therefore, must cooperate in bringing together the results of their various attempts in order that the foundations of such a science may be laid, and it is only when those foundations become visible to the world that there can be any hope that the money will be forthcoming to endow research in education.

SUMMARY OF THE MONTH.

NEW TRUSTEE OF THE BRITISH MUSEUM.

At a meeting of the Electing Trustees of the British Museum, held June 24, at 10 Downing Street, George Gilbert Aimé Murray, D.Litt., LL.D., F.B.A., Regius Professor of Greek in the University of Oxford, was elected a Trustee, to fill the vacancy caused by the death of the late Sir William R. Anson, Bt., M.P.

BOY SCOUTS.

Sir T. Thornhill Shann, Chairman of the Manchester Education Committee, expressed a very favourable view of the Boy Scout movement, in a recent letter to the *Manchester Guardian*, and argued that it was worthy of the support of Education Committees. He says:—"I know something of the Boy Scout movement, and, in my opinion, it deserves the hearty support of all who care for the welfare of the young. The movement is one of the strongest influences for good that I have ever seen. It turns the natural and irrepressible activity of the boy into beneficent channels. It not only teaches him to be self-reliant, alert, and observant, but it fosters the daily practice of little acts of kindliness and forbearance to others, and hence tends to inculcate the feeling of brotherhood. It was reasons like these that led me to advise the Education Committee three years ago to assist the Scout movement in Manchester by establishing classes to enable Boy Scouts to obtain the proficiency badges offered by their Association in such subjects as ambulance, pathfinder, carpenter, handyman, leather-worker, and swimming. These classes were attended by nearly three hundred Scouts last session. I hope the movement will receive support not only from the well-to-do, but from all who can spare a little towards this excellent object."

CONVERSAZIONE AT KING'S COLLEGE, LONDON.

On Wednesday evening, July 1, a large gathering of visitors, the staff, and past and present students attended a conversazione at King's College, London. The opportunity of inspecting the chapel, the laboratories, and the new accommodation in the basement was much appreciated by a large number of visitors. The entrance hall, where the reception was held, was gay with a profusion of choice blooms; in the corridors and in the quadrangle the scarlet and gold robes of eminent professors and doctors imparted a pleasing touch of bright colour. A number of highly interesting exhibits occupied the lecture rooms and laboratories, while on the illu-

minated terrace overlooking the Victoria Embankment the band of the Coldstream Guards played selections throughout the evening.

The Higher Professions.

An Intelligence Committee for the collection and distribution of information on the higher professions for women, to be known as the Higher Professions Intelligence Committee, has just been formed in connexion with the Central Bureau for the Employment of Women and the Students' Careers Association, Prince's Street, Cavendish Square. The Committee includes Lady Bryce, Mrs. W. L. Courtney, Miss Haldane, Mrs. Deane Streatfeild, and Miss Spencer (Secretary of the Central Bureau).

London University.

Sir P. Magnus, on June 29, asked the President of the Board of Education if he could inform the House whether—and, if so, what—negotiations were now going on for the establishment of a University in London; and whether it was contemplated by the Government to create a new London University.

Mr. Pease: A Departmental Committee is now dealing with the matter in accordance with its terms of reference, and I am not in a position to make any statement as to their proceedings. The Government certainly contemplate the reconstitution of the University of London.

Sir P. Magnus: Will the right hon. gentleman use his best endeavours to correct the impression which has been produced by his speech of Tuesday last, in which he stated that it was contemplated to make a new London University, apparently distinct and separate?

Mr. Pease: A slip of that kind is corrected by the use of the word "reconstitution."

In reply to a further question by Sir P. Magnus,

Mr. Pease said he did not suppose the Departmental Committee appointed to frame a Bill to give effect to the recommendations of the Royal Commission on University education in London would be able to submit their report before the close of the Session.

Foundation of a Scholarship at Marlborough College.

Mr. Henry Richardson, of Sigglesthorne, Marlborough, for thirty-five years assistant master of Marlborough College, who died on May 13, aged sixty-eight years, left estate valued at £21,143 gross, with net personalty sworn at £18,705. He left £1,000 to the Council of the Marlborough College to provide a second South African War Memorial Scholarship, "on condition that my name is not associated with it," to the Memorial Reading Room of Marlborough College a number of books, and to "any friend of mine, especially any past or present Marlborough boy or master, any book, picture, or other souvenir." He requested that his remains should be cremated, and he stated that he should like his name to be carved on the panel in Chapel, if the Chapel Committee should approve. He also left bequests to charities, including £100 to the Benevolent and Orphan Fund of the National Union of Teachers, in memory of John Bourchier and John Mylne, "who both died of consumption, a disease to which so many teachers fall victims."

Appointments.

The Council and Board of Trinity College, Dublin, have elected Mr. Walter Alison Phillips to the new Lecky Professorship of Modern History.

The Rev. R. W. Clarke, an assistant master at Sir William Borlase's School, Marlow, has been appointed Head Master of Market Bosworth Grammar School, Leicestershire.

The Governors of the Imperial College of Science and Technology have appointed Dr. A. N. Whitehead, F.R.S., to the newly constituted Chair of Applied Mathematics and Dr. C. G. Cullis to the Professorship of Economic Mineralogy.

On the nomination of the Principal of the University of London, the Right Hon. Viscount Bryce of Dechmount, O.M., F.R.S., has been appointed Creighton Lecturer for the year 1914–15. The title of the Lecture will be published at a later date.

The Council of the Froebel Society has appointed as Secretary to the Society Miss L. C. Courtenay, formerly Head Mistress of the Dover High School and occasional Inspector for the Board of Education.

Mr. W. W. Parkinson, M.A. Oxon., assistant master of Emanuel School, Wandsworth, has been elected by the City Corporation Head Master of the Freemen's Orphan School, Brixton, in succession to Mr. R. E. Montague, resigned.

The Governors of Dulwich College have appointed Mr. George Smith, of Merchiston Castle School, Edinburgh, to succeed Mr. Gilkes as Head Master. Mr. Smith is forty-seven years of age, and is a native of Ayr. He was educated at Ayr Academy, Edinburgh University (graduating Master of Arts with First Class honours in Classics), and Trinity College, Oxford. He took a first in Moderations in 1889 and in Literae Humaniores in 1891. After teaching for a few months at Edinburgh Academy he became in 1892 an assistant master at Rugby, where he remained until his appointment to the Head Mastership of Merchiston Castle School in 1898.

THE TEACHING OF ENGLISH IN JUNIOR FORMS.*

II.

By the Hon. Mrs. Franklin.

"For perhaps the first time in England all the students of language, from poets to philologists, are sitting down together before this fort of speech. It is a singular and animating spectacle, and a fine ruffle of gallantry sweeps through the camp; for there is a dragon in the case, and the lady to be relieved is the genius of our tongue." One wonders on reading this and similar statements with regard to the studying of teaching English whether the "dragon" is not of our own creating. It is true that for many years English was neglected, and a knowledge of our literature and language was the possession only of the picked pupils; but of late years there have been many efforts made to combat the inability to write, speak, and read our language, and yet few are satisfied with the result of such efforts. Perhaps the key to the problem is so simple that we have missed it in our earnest strivings after systems and methods. Our babies succeed in walking by attempting to walk; they learn how to eat and drink becomingly by practising these arts; and, *in spite of* scientific apparatus, most of them we hope will learn how to button their boots and shoes and garments by *buttoning* them. So they would learn English by reading good English and narrating and writing good English. The "dragon which guides the genius of our tongue" takes the form of our school books and oral lessons. Give the children free access to literature, and they will gain ideas which will nourish and sustain them, and words wherewith to express them.

For upwards of twenty years Charlotte Mason has in her Correspondence School (numbering some fifteen hundred children) tested this principle of bringing up children on a wide curriculum of books, whilst at the same time training their hands and eyes by means of manual work—with wood and clay, drawing, gardening, cooking, &c. Her experience leads her to say that "all children so taught express themselves in forcible and fluent English and use a copious vocabulary." This contention can be proved by a glance at the answers to examination questions.† A little child of six, at the end of the term when chapters ix to xvii of I Samuel had been taken (the teacher using as well Paterson Smyth's "Bible for the Young" and other books), answers as follows:—

Tell all about this first Coronation.

Saul was going along with his servant to find the asses. He met a lot of milkmaids going to draw water, and Saul asked where the

* The first article in this series, by Dr. David, appeared in the July number.

† To be seen at the Parents' National Education Union Office, 26 Victoria Street, S.W., or by post on application.

prophet was. And the milkmaids said, "Make haste! for the prophet came here this morning at nine o'clock." He went on very fast and he met Samuel. Samuel said, "You got to eat with me to-day." And Saul did eat with Samuel. He went down into the parlour and the cook brought him a leg. He ate the leg and went out into the street and Samuel poured a horn of oil on Saul's forehead and said, "Now you're King." Samuel told him, first he would meet a few men, then some people coming down with pipes and musical instruments. Saul went and he did meet these people.

All the people and Saul were going to be blindfolded and they were going to put their hands in a bowl to draw. The people drew lots and the tribe of Benjamin was drawn, then the tribe of Saul and all the people said, "God save the King."

Here is another example from a child of eight and a half:—

Why did God reject Saul from being King?

Because of his disobedience. One day Saul and his men were on the battlefield, waiting for Samuel to offer sacrifices and bless the army. And as Samuel tarried, Saul offered the sacrifice himself. And as he finished he saw Samuel coming up with a fierce, angry and solemn face. And Saul's answer was that the people were getting frightened. Another time Saul made a vow to kill every one that ate anything so as to ensure victory. It showed that Saul was getting superstitious.

His next disobedience was to put up for himself a monument at Carmel. It was after the battle of the Amalekites. Saul and his men knew very well that they should not touch anything that belonged to the Amalekites. But Saul took deliberately the best of the sheep and oxen for himself. But on his way home he met Samuel, and said to him nervously, "I have obeyed the commandment of the Lord." And Samuel asked, "What meaneth this lowing of oxen and bleating of sheep?" Samuel told him, "Behold to obey is better than sacrifice and to hearken than the fat of rams."

And in English History where the books read were Arnold Foster's "History of England" on the special period, Kingsley's "Westward Ho!" Macaulay's "Armada," Tennyson's "Revenge," and other poems and ballads, we get the following from a child aged nine and three-quarters:—

Tell the Story of the coming of the Great Armada.

Philip determined to give one big blow against England which should crush her power. He gathered a huge army in Holland and he prepared many ships to sail to the Netherlands and carry the army across to England.

At last the great fleet started, but it was driven back by the wind. In England also a great army was gathered together, the Roman Catholics in England did not listen to the Pope, who had said that Queen Elizabeth was not the queen, they flocked together, not minding if they did fight with Roman Catholics. The English were not nearly as well off in many things as the Spaniards—the army was not nearly as great, and what there was of an army was not much good, for there were few real soldiers; the only soldiers were a small bodyguard of Queen Elizabeth's and few had ever fought, and they were not used to acting together.

For ships they were fairly well off, merchants readily supplied ships, with crew and gunpowder and guns, all ready supplied.

Once Queen Elizabeth went and made a speech to the soldiers, in it she said "I am but a woman, but I have the heart of a King, and a King of England too; and think it foul scorn that Palma, or any other nation should come against my realm. But I trust we shall win the victory this day. And I myself will fight with you."

Beacons had been made on all the high places, so that when first the Armada should be seen, they might all be lit, and so get England ready to meet them.

At last the fleet had been sighted off Lizard Point, the beacons were at once lit and all the people got ready. The Spaniards had brought with them many priests, to turn the Protestants into Roman Catholics when they had conquered England—a few surgeons, in case any one should get wounded—and in a great chest they had brought some, &c.

Anyone can test for himself whether the same freshness of style is gained from many of the methods used—*e.g.* a lecture, or talk about Saul; the reading and discussing of some poem, when the dissecting and analysing seems to destroy the child's natural joy in the beauty of word and phrase.

A frequent examination question is to ask the children to describe a picture studied, &c., in verse in the metre of some poem which has been read during the term. The high average standard reached invariably astonishes those accustomed to other methods of teaching English composition.

If one reads to a child of any age from six to ten an account of an incident, graphically and tersely told, the child will relate what he has heard point by point, though not word for word, and will add delightful original touches. What is more, he will relate the passage months later because he has visualized the scene and appropriated that bit of knowledge. A rhetorical passage, written in "journalese" makes no impression on him; if the passage be read more than once, he may become letter-perfect, but the spirit, the individuality has gone out of the exercise. An older boy or girl will read one of Bacon's Essays, say, or a passage from De Quincey, and will write or tell it very forcibly and with some style, either at the moment or months later. We know how Coleridge recited a whole pamphlet of Burke's at a college supper, though he had probably read it no more than once. Here on the very surface is the key to that attention, interest, literary style, wide vocabulary, love of books and readiness in speaking, which we all feel should belong to an education that is only begun at school and continued throughout life.

These are the things for which we are all striving, and which Miss Mason is labouring to disclose for public use. A schoolmistress who had studied her methods of teaching English applied the above test, and read to a class of half-timers, aged twelve and a half, Miss Mitford's "Our Village." Six weeks afterwards the class were asked to describe some scene they had witnessed. I subjoin one of the answers:—

OUR VILLAGE ON WHIT MONDAY.

"What a beautiful day!" Such was the exclamation I made when I awoke on Whit Monday to find the sun laughing at me through the window, and inviting me out into the fresh morning air. As I look out of my bedroom window I can see a copse. How beautiful it is! The trees are nodding and seem to be saying "Good morning!"

To day is Whit Monday, the day on which most scholars of the different Sunday schools walk round the village to sing their hymns of praise. Most of the scholars meet at 1.30 p.m. at their respective schools and have a practice before setting out to walk.

We will follow them and see what they do. Ah! here comes a band of scholars. "Who are these scholars?" I ask. The "Primitives" is the answer I receive. Let us stay and listen to their singing. What a sweet melodious sound comes from the band of scholars as they sing a hymn entitled: "Christ's Little Child"; but we must pass on, for the time is passing quickly.

As I look over the moor I can see in the distance the flutter of white dresses. What a long procession this is! What a patter of little feet! It is the Wesleyans who are going round the village singing their hymns. There comes their waggon bearing their harmonium and organist, but I can see other things on it besides. What are they? Tiny children with bright, happy faces, delighted because they are having a ride. It is a pleasure to listen to their sweet singing. The conductor is now telling them that tea is ready.

Let us follow them and see how tea is conducted. Ah! here comes a man with the tea-urn and another with the buns. Just look at the tiny children's eyes. How they sparkle! What a clapping of little hands! These are the Wesleyan scholars who are seated round the room enjoying their tea and buns. Let us leave these and go and see how the Primitives conduct their tea. The scholars are seated on forms in the school yard and are enjoying their buns. "Do you provide mugs for tea?" I ask. "No, they bring their own," is the reply.

Tea is finished and the scholars rush in a body to the field which has been selected and lent them for them to play in. Different kinds of games are being played now. Here is a party of young ladies and gentlemen playing ball.

How the little children flit from place to place! Some are running after a ball, some trying to catch their friends. What is that I hear? A shout of "Hurrah!" Ah! I see what all this noise is about. There is a man with a bag containing sweets. All the children are standing in a row waiting in breathless excitement for their turn to come to receive a gift of sweets.

The children, being supplied with sweets, run away again to enjoy their play during the rest of the evening.

The evening wanes and night draws nigh. What a beautiful sunset! I will try and describe it. Just imagine a blue cloudless sky with a purple horizon tinted with orange and red. The sun is like a ball of fire sending its glorious light on to a small pond. What a picture it makes with the rippling of the water, the reflection of the sky, and the beautiful green bushes that surround the pond.

The sun has set and darkness begins to creep over the land; the birds and beasts have gone to rest, and the children, being tired out with their day's doings, follow the example of the birds and beasts and flowers, and trot home with weary feet and drooping eyelids, holding on to the hands of their parents or elder sisters. What a difference in these children from this afternoon. The bright happy children of the afternoon are now tired out and glad to be led home by their parents and put to bed to sleep and dream of their day's doings.

But extracts and little bits of desultory reading, however good, are not enough, neither is "browsing in a library," or casual home-reading. If we give children living books in school hours, for their actual lessons, they will browse in libraries and borrow books with some real purpose so that they may satisfy their intellectual joy. Allowing for Bernard Shaw's whimsical manner, we are glad to welcome him as supporting our theory. "With the world's bookshelves loaded with fascinating and inspiring books, you are forced to read a hideous imposture called a school book, written by a man who cannot write: a book from which no human being can learn anything: a book which, though you may decipher it, you cannot in any fruitful sense read, though the enforced attempt will make you loathe the sight of a book all the rest of your life." And again: "Though nothing would have induced me to read the budget of stupid party lies that serve as a textbook of history in school, I remember reading Robertson's 'Charles V' and his history of Scotland from end to end most laboriously."

In the Parents' Union School, Miss Mason gives such books as, *e.g.*, "Andersen's Fairy Tales," "A Child's Garden of Verses," "The Golden Staircase," "Aesop's Fables," Mrs. Gatty's "Parables from Nature," "The Pilgrim's Progress," "Tales of a Grandfather," "English History from Original Sources," "The Story of the World," "From Pole to Pole," up to Plato's "Republic," Shakespeare's Plays, Green's "History of the English People," Sir J. Seeley's "Expansion of England," Marco Polo's "Travels," &c. With such books she is teaching history, geography, science, literature, and, *pari passu*, English. She chooses the syllabus of reading for the five classes (six to seventeen) with care and literary acumen. She says:—

We find it a good plan in the Parents' Union School to make history the central subject, and to let other subjects, such as literature, geography or travel, reading in modern languages, radiate from the history studied, an arrangement which appeals to common sense, and most teachers follow some such rule.

Now for the crucial question—that of a wide curriculum. There is no doubt that teachers are, from their point of view, justified in their protest against the inclusion of many subjects of study. Let us consider the laborious process of getting, say, a single historical incident, with the events that led to it and that ensued, "into" a class. The master, we will say, gives a lesson or lecture, with blackboard notes, readings from various authorities, and any pictures or other illustrations that occur. Then follows a *questionnaire* in which the bright boys shine, but the majority continue to do nothing. Full notes have been dictated and taken down by the boys during the lecture, which they report *in extenso*, and the master at his leisure (!) corrects. Three "periods" of school-time have been encroached upon, but little knowledge is gained, and that imperfectly known by the best boys and oddly muddled by the rest. The attention of the boys has been divided between their private subjects of speculation, the effort of taking notes, and the matter in hand; so very little is done, even with an inspiring teacher.

Let us substitute self-education for this manner of conscientious teaching. Every boy has his book, a well written, considerable manual; a single good book should, I think, be left to tell its own tale. The boys read a section or a chapter either aloud or silently, little or no explanation is offered; a boy can understand what he is able to read, and the book explains itself. In half an hour the class will have read a number of pages; then a few of the less attentive boys are required to narrate what falls under such and such a heading (on the blackboard); or, the boys are tested by being required to write a short paragraph on some point in the lesson. Their spelling and composition will probably be good because these are learned by reading. Their intelligent mastery of the subject is pleasing; even the dull boys know; the class is at attention all the time, understanding that only a single reading will be allowed. What is read with attention is not forgotten, and no getting up of notes is necessary later when a general examination is due. The amount of time saved is so great that a large number of good books are in reading each term, while no more time is afforded for history and literature, say, than is given in any good school.

Give the scholar books that are worth reading, let him do the work for himself, and his attention does not flag; he is able to take in any fairly lucid passage at a single reading, and his mind works after its manner upon that which it has apprehended. We come into the world with enormous curiosity ready to develop into a love of knowledge; with, also, a desire for variety, change, which is not sufficiently utilized in school-work. Give short lesson "periods," include many subjects during the week, and children will do double the work in double the number of subjects with less labour and better results than they would do half the work in half the number of subjects under the usual conditions. Now, this is true only if they read for themselves their own books; but many teachers are like a chauffeur who would not only "feed" his engine but get down to turn the wheels of his car! We insist on turning the wheels of a child's mind, whereas our sole duties are to supply and direct it, and, because a child is not an engine, to give impulse and sympathy. An energetic teacher complains that if he is not to teach all the time there is nothing left for him to do; he is zealous, like that curate to whom his vicar gently hinted that it would be well from time to time to read a sermon by one of our great divines instead of preaching his own. "Sir," said he, "do you think I would offer my Maker that which cost me nothing?" "Very true, very true, my dear fellow, but should we not offer that which is worth something?"

Conscientious teachers love to spend themselves, to give that which costs them something, but is what they give of value? Or is it not true that either teacher or scholar works during a lesson, but not both? The teacher's more delicate and less obvious work is profitable to his pupils; not so, that really fine lesson on which he has spent himself; for in this regard, if teachers will but believe it, the returns are in the ratio of the expenditure, not of energy on the teacher's part, but of attention on that of the pupil.

A little person goes about all day in quest of knowledge, and his remarks surprise his elders; many a written tale delights him; but when he goes to school, he is not allowed to forage in those fields which we call books. But he cannot read, you say. No, nor is there any hurry that he should acquire the mechanical arts of reading and writing. Tell him tales; let him learn flowers and birds and things till he is six; then he should go to school, whether at home or elsewhere, and the learning to read and write and sum are by far the least important parts of his education. He begins to be at home in the worlds of letters, history, travel, not through watered-down reproductions brought to "his level," but through poems, tales, histories—the best that we have. His serious self-education has begun, because he narrates what is read to him. He listens with fixed attention, and is able to tell the whole; that is, he acquires the reading habit during the two or three years spent in learning the crafts of reading and writing; and, in so far as he possesses this habit, he is better educated than many a boy or girl who on leaving school are unable to fix their attention in such wise as to know a page or passage at the first reading. By and by, when he can read, the habit of attention continues with him; he knows quite well what he is reading, and is bored by much talk about it. What he wants to know is that his teacher cares too; for him he feels a ballad or an ode (not a sonnet, though, for that usually touches a chord of experience), plays his part in the history of his race, journeys with the traveller, sees the things he reads of.

We are told every day that England is degenerating, that we are becoming a commonplace people with vulgar aims; and it is amusing that one should stand and cry aloud—Books, more Books, Books in school, and Books on many subjects—as the sole efficient bulwark against an invasion of materialism. Abana and Pharpar are better rivers than Jordan, but the Jordan I propose is an infallible cure for the dead and leprous spirit of man, because nothing speaks to us more directly from the Spirit of God than the best books of the best men; and does not "Books" include, and put in its proper place, close converse with, familiar knowledge of THE BOOK *par excellence*, through whose pages we believe that we are taught of God?

It is possible that, in the passages I have quoted from Miss Mason, I have allowed her to plead for the giving of living ideas to children rather than more especially for the teaching of English. But to me the advantage of these methods is just that, whilst attaining our object and giving children a rich vocabulary and the power of expression in speech and writing, we are also answering the cry for "persons" nourished on knowledge and ideas.

Articles have lately appeared in these pages on "Sane Sex Teaching," and the point has been repeatedly emphasized that children's minds should be filled so as to help them to avoid temptation. Incidentally, whilst teaching them English we are doing this, and I venture to think more effectually than by means of lessons in oral composition, or by the setting of desultory essays, &c. Wide interests leads to chastity of thought and word. The "reading habit" formed in early years would prevent the possibility of, *e.g.*, the hunting for obscene words in a dictionary. The little boy whose reading had led him towards this end had indeed been given an instrument full of dangerous possibilities, without any guide as to how to handle it.

Moreover, the temptations offered by ugly, vulgar books, depicting untrue situations and men and women who never could have lived, will be quite easily resisted by those children who have been given entry into their heritage of literature.

They ask for more time to read the many works of their friends among the great artists, who, like George Meredith, feel "that all right use of life, and the one secret of life, is to pave ways for the firmer footing of those who succeed us; as to my works, I know them faulty, think them of worth only when they point the way to that end. Close knowledge of our fellows, discernment of the laws of existence, these lead to great civilization. I have supposed that the novel, exposing and illustrating the natural history of man, may help us to such sustaining roadside gifts. But I have never started on a novel to pursue the theory it developed."

This same writer tells us elsewhere how Beauchamp, "while admitting that he could not quite master it, liked the book he had dug out of a bookseller's shop in Malta, captivated by its title, and had, since the day of his purchase, gone at it again and again, getting nibbles of golden meaning by instalments, as with a solitary pick in a very dark mine, until the illumination of an idea struck him that there was a great deal more in the book than there was in himself. This was sufficient to secure the devoted attachment of young Mr. Beauchamp."

Every great biography shows us how natural it is for children to delight in effort of an intellectual kind, and how they love the turn of a sentence, and the sound of beautiful rhythm, and yet we go on giving them "Stories from Tennyson," and "Water Babies told to the Children," and let them see "Hamlet" on the kinema. A girl of seventeen, my companion in a railway carriage, observed to her friend who was reading "Les Misérables" in English, "I needn't bother to read that; I saw it on the kinema." The right "teaching of English" would have made her see the blasphemy of this remark.

FIN JUILLET.

There's a stirring in the study, and a rustle in the class,
There is quivering sensation in the air.
There's a sound as of a going that will surely come to pass,
Of an exit from the pedagogic chair;
There are symptoms of the shedding of the academic gown,
Of the hurling of the academic cap,
Of tho academic duster cast incontinently down,
Of a dancing on the academic map.

There's a smashing of the test-tube and a sweeping of the floor,
A detaching of the clapper of the bell,
There is emptying of bottles of their H_2SO_4,
Of their $AgNO_3$ and HCl;
There is banging of the lexicon, and closing of the page
Where λύω lurks the guileless youth to vex;
And the curtain's falling rapidly upon the darkling stage
Where the *Ranae* chant a last βρεκεκεκέξ.

There's the downland ever changing 'neath the shadow and the sun,
And the sea-wind whirring cleanly through the gorse,
And the fiords that own the sceptre of the admirable Lunn,
And the bunkers low'ring grim around the course;
There's the trout defying artifice in limpid mountain stream,
There's the road that hears the panting push-bike's toil,
While the purring of the engine lulls the plutocrat to dream
Of a universe of rubber and of oil.

Be the dear impedimenta salmon-rod or spade and pail,
Bo the destination Margate or Montreux,
Do they rush to mount the Dolomites, or press they on the trail
Of phonetics at St. Malo or Bayeux,
'Tis a glad farewell and merry to the blackboard and the chalk,
To the "function" and the cosine and the tan.,
And an exodus superlative from endless realms of talk
To lose the weary teacher in the man.

A. C. B.

THE LIGHTER SIDE OF PEDAGOGY.

No More Poetry.

Mr. Pease, speaking a little time ago at Colchester, had two humorous stories of children in elementary schools. The first was about Johnny, who not only learnt poetry at school, but insisted upon repeating it to his unwilling parents. His mother wrote to the teacher: "Please do not teach him any more poetry. He is going to be a grocer."

Pride in Calamity.

The second of Mr. Pease's stories referred to a conversation between three boys, overheard on the day of the medical inspection. Said one: "The doctor examined me, and the doctor says I can have a pair of eyeglasses." "And the doctor examined me," said the second, "and he said I could have three teeth out." The third cried: "I can beat both of you. The doctor says I may die at any moment."

A Sumptuary Law for Teachers?

The *A.M.A.* has this extract from the report of a meeting of an Education Authority. "What does this young man want a rise for? He gets three pound a week, and he ain't married. I brought up a family on thirty bob a week."

Learn from Advertisements!

This is a genuine "howler" made a few weeks ago in a secondary school. Girl (reading from the "Pied Piper"): "Split open the kegs of salted sprats." Mistress: "What are sprats?" Girl: "Dog biscuits."

Severe Competition.

Dean Inge, in distributing the prizes at the Francis Holland School, told a story of a certain Scotch mixed school, where a proud boy emerged with a second prize. He was asked how many pupils there were in his class, and, with obvious humiliation, was forced to reply: "Just me and a lassie."

Delicate Tact.

Examining Admiral (to Naval candidate): "Now mention three great admirals." Candidate: "Drake, Nelson, and ——. I beg your pardon, sir, I didn't quite catch your name."—*Punch.*

A Difference.

Even in youth [writes a correspondent to the *Manchester Guardian*] the subtlety of the feminine mind is discernible. My daughter, who is a student at a large school for girls, was telling us of the excitement caused by the visit to the school of a very eminent lady. "The pity was," she said, "that earlier in the day Miss —— [the principal] had been speaking to us about the unwisdom of talking too much about people, and she had put us on our honour for that day not to discuss any person. And, of course, when recreation came, after the visitor had gone, we were all dying to talk about her." "Did you?" I asked. "No," was the reply; "we talked about her hat."

Pole or Perch.

A correspondent writes as follows from the S.A. College School, Cape Town:—"I notice a recent competition in your paper dealing with howlers. Some of your readers may be interested in the following, which occurred last week. A class of boys (average age fourteen) was at work on some sums when one boy brought me the following question: 'A circle is 42 yards in diameter; find how many poles there are in the circumference.' As I was evidently at a loss to see his difficulty, he said: 'You see, Sir, they don't tell you how far the poles are apart.' A moment or two later he suddenly smiled and departed to his seat."

PRIZE COMPETITION.

Prizes are offered each month for the best replies to the subject set. Competitors may, if they wish, adopt a *nom de guerre*, but the name and address of winners will be published. Competitions, written on one side of the paper only, should be addressed to the Editor of *The Educational Times*, 6 Claremont Gardens, Surbiton, and should reach him not later than the 15th of the month. As a rule competitions should be quite short, from 100 to 500 words.

The first prize will consist of half a guinea; the second prize of a year's free subscription to *The Educational Times*. It is within the discretion of the Editor to award more than one first prize, or more than one second prize. Cheques are paid on or about the quarter-day following publication.

For the July competition a prize of half a guinea is awarded to Mr. W. Langley Roberts, Mill Terrace, Thornton, Preston.

Subject for July.

Which novel in the English language is best entitled from the nature of its contents to the epithet "The Teacher's Novel"? Give very briefly the reasons for your choice.

This subject naturally leaves room for a good deal of difference of opinion, and the answers submitted included a great variety of books. To be entitled to rank as a teacher's novel a work must obviously deal with life mainly from the teacher's point of view. The teacher's status must be prominently brought forward. It has been used as a reproach to our craft that we are the "inarticulate profession." Whatever the teacher's novel may be it must be one which helps to remove this aspersion. We are inclined to think that, while it may be impossible to say precisely which novel best deserves the name in question, there is certainly one novelist who can fairly claim to have done most to remove the charge of inarticulateness. This is Charlotte Brontë. The trouble with her rises from the fact that it is difficult to say which of two novels more deserves the teacher's vote. Either "The Professor" or "Villette" will meet the case. The subject in both books is the teacher in the various aspects of his life. A certain amount of matter is common to the two books, but, as "Villette" is the later, the larger, and the more elaborate book, many will be inclined to give it the first place. But there is a good deal to be said for the smaller and earlier book. The status of the teacher is deliberately set forth: "Allons, monsieur le professeur — asseyons-nous; je vais vous donner une petite leçon dans votre état d'instituteur." Every teacher will appreciate what underlies the passage: "I entered, flinging the door wide and striding in fast, as it was my wont to do now; for I had found that in entering with aplomb, and mounting the estrade with emphasis, consisted the grand secret of ensuring immediate silence." There are, of course, many other novels in which the teacher plays quite an important part. Some are deliberately written by teachers for teachers. To this class belong Mr. Gilkes's "Boys and Masters"; but, good as the book is, it hardly deserves to be described as a novel. The same may be said of that remarkable book by Mr. Hawley Smith that has had such a success in America, "The Evolution of Dodd." Here the interest is certainly pedagogical throughout, and, had any of the competitors brought forward "Dodd," a prize would have had to be awarded to their choice. "The Hoosier Schoolmaster" was not submitted, and Ichabod Crane can hardly claim to rank as the hero of a *novel*. Steuart's "Minister of State," while in the running, has to give way in point of pedagogic interest both to the Brontë novels and to "Dodd."

Several of the competitors appear to have taken the view that what is wanted is the novel that is of most use to the teacher in his class work. This is the only explanation that can account for the selection of "Ben Hur." This story strikes the competitor as being of the greatest possible service in helping the pupils to form a proper background for Bible lessons. "I know of one case," she says, "in which a pupil could not connect facts in the Gospel at all. After reading 'Ben Hur' she always headed the list in her school examinations, and also understood and took an interest in the work." Another competitor selects Kingsley's "Water Babies," on the ground that it "is a prose poem, a work of appreciation of the teacher's art, and not the contrary, as is the popular delineation of the teacher's work and character."

If we adopt the point of view of the pupil rather than the teacher, we have several excellent examples. Marie Corelli's "Mighty Atom" has a good deal to say for itself from this point of view. Kenneth Graham's "Golden Age" is suggested, but it has to be ruled out as not being a novel. The same objection might be raised against "Emmy Lou," so we cannot complain about its omission; but we hope that no teacher who reads this and has not read "Emmy" will rest content till he has read her.

Subject for August.

The most appropriate quotation (in either prose or verse) to head an essay on "The Ideal Teacher."

CURRENT EVENTS.

The number of entrants for the Midsummer Certificate Examinations of the College of Preceptors denotes an increase in each grade in comparison with the figures for 1913. The total increase is 538.

The President of the Board of Education received on July 9 a deputation appointed by the Joint Committee representing the College of Preceptors and the Private Schools Association. A full report appears in another column.

At the last meeting of the Council of the College of Preceptors it was decided that "The Council accept as eligible for membership of the College such teachers in secondary schools as are on the Register kept by the Teachers' Registration Council."

Prof. John Adams will deliver a course of twelve lectures on "The Practice of Teaching" at the College of Preceptors. Particulars will be found in the advertisement columns.

The Conference of Teachers of English will be held at Stratford-on-Avon from August 1 to 8, and a second conference has been arranged, August 8 to 15.

A provisional program has been drawn up for a series of meetings during the winter months for members of the College of Preceptors. The arrangements will be published shortly. The opening meeting will take the form of a conversazione, at which Sir Philip and Lady Magnus have most kindly promised to be present and receive the guests.

A new secondary school for girls, which has been built by the Surrey Education Committee at Guildford at a cost of nearly £18,000, has been opened by Dr. T. E. Page, formerly Sixth Form Master at Charterhouse.

Forty boys from the Barnsbury Central (L.C.C.) School have enjoyed a week's visit to Paris under the charge of three teachers. The boys, who are between twelve and fifteen and a half years of age, pay for the trip themselves, having saved 45s. each during the past year for the purpose. They go as a school class, and the journey is wholly for educational purposes.

The Warden and Council of Bradfield College desire it to be stated that, as the idea still seems to persist in some quarters that, owing to financial difficulties, Bradfield College may not be able to continue, they desire to give the widest publicity to the fact that this is not the case. The fund raised by Old Boys and other friends in order to place the school on a sounder financial basis now amounts to £19,000, and the stability of the school is assured. The fund is being kept open, and it is hoped that further donations will enable it to be established as a permanent endowment fund. Donations may be sent to Mr. O. M. Powell, 7 Lincoln's Inn Fields, London, W.C.

1914.

THE COLLEGE OF PRECEPTORS

INCORPORATED BY ROYAL CHARTER

BLOOMSBURY SQUARE, LONDON, W.C.

LECTURES FOR TEACHERS

ON THE

SCIENCE, ART, AND HISTORY OF EDUCATION.

PROBLEMS IN SCHOOL PRACTICE.

To be delivered by Professor J. ADAMS, M.A., B.Sc., LL.D., F.C.P., Professor of Education in the University of London.

The Second Course of Lectures (Forty-second Annual Series) will commence on Thursday, October 1, at 7 p.m.

The purpose of the course is to present the principles of teaching practice in the way most suited to their application to the ordinary work of a school. In the ultimate resort every teacher must apply for himself the principles of his profession, but he may be greatly helped by observing how others have dealt with the problems he must face. To this end the lectures will be very copiously illustrated by references to the teaching of the various subjects of the ordinary school course, while particular attention will be given to those subjects that must be taught by all teachers who are not specialists. The lecturer will base his suggestions on the state of things actually existing in the schools of the present day.

SYLLABUS.

I. (*Oct.* 1.) *The Teacher's Self-Appraisement.*—Need for and danger of mental stock-taking by the teacher: qualities of the ideal teacher: co-efficients of the teacher's powers: how to make the best of the qualities actually possessed: manipulation of the pupils' estimate of the teacher: source of the teacher's authority: modesty and its dangers: sincerity and its implications: the teacher as actor: imposition of teacher's character upon the pupils: precept and example.

II. (*Oct.* 8.) *The Natural History of the Pupil.*—Child-study and its dangers: the living pupil here and now before the teacher: the "average" child, and the type: the "human" boy (and girl) as pupil: relation of age to development: description of various types of troublesome pupils: dullness and its manipulation: artificial stupidity: tests of intelligence: the precocious pupil and his treatment: aids towards putting ourselves in the mental attitude of our pupils: the "little man" fallacy.

III. (*Oct.* 15.) *Place and Function of Class Instruction.*—Class instruction always a compromise: an economic necessity: Dr. Montessori's views on the use of the class in instruction: advantages enjoyed by the private coach: compensations of the class teacher in respect of (*a*) mere instruction, and (*b*) real education: psychological nature of the class: general influence of collective psychology in modifying class management: what is implied in the *size* of a class: attempts of MacMunn and others to combine the advantages of class and individual instruction.

IV. (*Oct.* 22.) *Administrative Limitations of the Teacher's Freedom.*—His many masters: regulations of the Board of Education and of the Local Authorities and School Governors: Syllabuses, Time-Tables, Schemes of work: margin of liberty: too common lack of willingness to accept what liberty is left: the official mind and its manipulation: an instructive bit of law: the official art of compromise: the art of interpreting regulations: the manipulation of conflicting regulations: the teacher as himself an official: the teacher as diplomat.

V. (*Oct.* 29.) *Free Discipline.*—Very practical nature of the problem involved: Montessori System only one form in which it appears: Tolstoi's anarchic school at Yasnaya Polyana: the spirit of the age: two contrasted ideals—self-realisation and self-expression: freedom *versus* caprice: self-imposed restrictions implied in real freedom: correlative increase of freedom and restrictions: internal and external control: freedom and self-control: reconciliation of opposite controls by reference to the invisible and invariable third.

VI. (*Nov.* 5.) *Newer Methods of Teaching.*—General advance in effectiveness of method: accompanying development of professional conscience: danger of falling behind the times: relation of theory to method: relation of theory to experience: danger of excess of theory and of lack of theory: the doctrinaire and the empiric: the pedagogic type of mind and its dangers: means of keeping in touch with the newer educational developments: attitude to be adopted towards "fads" in education: need for certain fixed canons in educational criticism: the development of an objective standard.

VII. (*Nov.* 12.) *School Books.*—The economic aspect: popular criticism of the teacher's attitude: the ownership of such books both in economic and educational aspects: danger of the school book usurping the teacher's place: parental criticisms on this matter: school stationery and its dangers: paper, print, binding, and illustrations of school books: hygienic considerations: pupils as makers of school books: advantages and dangers of note-taking by pupils: different editions of school books and consequent complications.

VIII. (*Nov.* 19.) *Use of Libraries in School.*—Nature and function of school library: the economic aspect and the educational: differences between class library and school library: preliminary training of the pupils in the mere handling of books as books: the æsthetic and the didactic aims of book-using, and the correlation of these aims: special use of the reference library: rudimentary research: manipulation of catalogues and indexes: bibliographies and their uses: the best use of external libraries, particularly the ordinary public library.

IX. (*Nov.* 26.) *Written Exercises and their Correction.*—Need for a great deal of written work in school: yet certain experiments in Illinois prove possibility of excess: relation between form and matter: "having something to say and having to say something": present quarrel among teachers in America: every written exercise should be regarded as an exercise in composition and marked as such: teachers of other subjects must make themselves responsible for the correction of the English of their pupils: danger of wasting time in over-refined correction: need for conventionalised contractions: burden of actual *correction* to be thrown upon the pupil: teacher to limit himself to marking.

X. (*Dec.* 3.) *Specialisation.*—Modern tendency towards specialisation even in elementary schools: occasional confusion between pupil-specialisation and teacher-specialisation: time-table difficulties involved when specialist staff is employed: consequent modification of organisation: advantages of the specialist system: possible dangers: the German *ordinarius* and the English Form-Master with the correlative kinds of school organisation: stages at which the Form system and the Specialist system each does its best work: possibility of an effective combination of the two.

XI. (*Dec.* 10.) *Experiment in School Work.*—Every intelligent teacher is experimenting all the time: clear distinction between *experience* and *experiment*: increase in deliberate experimenting of late years: justification of the suspicion the public shows of school experiments: the brass instrument experiment: motives of the experimenters: possibility of combining the advancement of the study of education with the promotion of the highest good of the individuals experimented upon: experimental pedagogy and its literature: need for "control" in school experiments: effect of experiment in increasing interest in school work.

XII. (*Dec.* 17.) *Testing the Results of Teaching.*—Contrast of inspection and examination: difference between testing *final* results and intermediate results: two forms in which examination is carried on (*a*) to test by means of reproduction, (*b*) to test by means of intelligent application of knowledge acquired: internal and external examinations: the teacher as examiner: how to draw up an examination paper: how to mark the worked papers: numerical *versus* literal marks: how to secure uniformity of standard: how to prepare pupils for an external examination with the minimum amount of injury to themselves.

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THE DEPUTATION TO MR. PEASE.

By ONE WHO WAS PRESENT.

A DEPUTATION consisting of members of a Joint Committee of the College of Preceptors and the Private Schools Association Incorporated waited upon the Right Hon. J. A. Pease at the Board of Education, on Thursday, July 9, to lay before him some important resolutions and to suggest ways in which approved private schools could be brought within a national system of education. The members of the deputation were Sir Philip Magnus, M.P. (President of the Council of the College of Preceptors), Mr. J. F. P. Rawlinson, K.C., M.P. (Member of the Council of the College of Preceptors), Mr. W. G. Rushbrooke (Dean of the College of Preceptors), Mr. S. Maxwell (Chairman of the Joint Committee, Chairman of Council, Private Schools Association, Member of Council of the College of Preceptors), Mr. A. D. Hardie (Member of Council of Private Schools Association), Mr. R. Hawe (Member of Council of the College of Preceptors), and Mr. G. Chalmers (Secretary of the College of Preceptors). In addition to Mr. Pease, Sir Lewis Selby Bigge and the Hon. W. N. Bruce were present.

Sir PHILIP MAGNUS introduced the deputation and said that, as the President of the Council of the College of Preceptors and Past President of the Private Schools Association, he was deeply interested in the welfare of private schools, which held such an important place in the educational world. He thought it would be a great misfortune if a place could not be found in any national system of education for such schools, and it was to advocate their claims that this deputation had come. Not only were educational experiments frequently carried out in private schools, but in them the personality of the teacher—that most important factor in education—had its fullest scope.

The following resolutions which had been adopted by the Joint Committee were then submitted :—

1. That the Board of Education be invited to prepare a Return of all Private Schools in England and Wales.
2. That this Committee would cordially welcome the inspection of all private schools by the Board of Education, and is of opinion that such inspection should be undertaken by the Board without charge to the schools inspected.
3. That, in the opinion of this Committee, approved private schools should be eligible to receive grants in aid from the Board of Education.
4. That scholarships awarded by Local Education Authorities should be tenable at any private school approved by the Board of Education.
5. That assistant masters and assistant mistresses in approved private schools should be eligible to participate in any Pensions Scheme applicable to assistant teachers in secondary schools.
6. That the approval of a school should depend primarily on its educational efficiency, provided that its equipment, sanitation, and accommodation are on the whole satisfactory, even though they may for the present fall short of the standard required in the case of new public secondary schools.
7. That the approval of a private school should not be refused or withdrawn by the Board until the head master or principal of the school has been offered full opportunity of presenting a written statement on behalf of the school.
8. That where a private school on inspection is found to be inefficient in any respect, the Board shall offer, before refusing or withdrawing approval, another inspection, which should be held after an interval sufficiently long to give an opportunity for carrying out any improvements which may have been suggested in the Board's Report

The first five of these have been adopted by the Federal Council of Secondary Schools Associations, which includes the following bodies: the Head Masters' Association, the Head Mistresses' Association, the Assistant Masters' Association, the Assistant Mistresses' Association, the Preparatory Schools Association, the College of Preceptors, the Private Schools Association, the Conference of Catholic Colleges. The other resolutions were approved as a basis of discussion with the Board.

In speaking on the first two resolutions, Mr. Maxwell said that the Committee regarded Inspection as the only satisfactory method of determining whether schools were worthy of approval. Consequently he suggested that all private schools should be inspected by the Board. This would mean compulsory inspection, and therefore he suggested it was only right that the schools should not be required to pay the cost. But it was obvious that many years must elapse before it was possible for such an inspection to be completed. On the other hand, it was of urgent importance that the Board should be in possession of information with regard to the number of private schools, the accommodation in these schools, the number, age and sex of the pupils, the number of teachers, and the dates at which the schools were established, without waiting until the formal inspections were complete. This was the reason for suggesting a survey. He was aware that some Local Education Authorities already had the power to institute a survey of private schools in their respective areas, but he thought that if the work were undertaken by the Board there would be greater uniformity of treatment and less likelihood of gaps. He would like to offer one more suggestion with regard to Inspection. He thought it would be helpful if the Board could see its way to include among the Inspectors some who have had experience in the work of private schools.

Mr. Hardie, in speaking on Resolution 3, said that the Joint Committee felt that the question of suggesting that approved private schools should be enabled to receive grants in aid from the Board of Education was the most difficult one with which they had to deal. Believing that private schools offered the most favourable field for experiment and that they were bound, under pain of extinction, to respond readily to local and special needs, it seemed that the permanent existence of such schools would secure a distinct advantage for education. But they had to face the fact that, through insufficiency of funds, a number of those schools might find it impossible to satisfy the requirements of the State in certain respects, and it was felt that so long as that was the case the position of those schools would be precarious. Some of the schools charged sufficiently high fees to enable them not only to maintain educational efficiency but also to reach any standard which the Board might prescribe in the matter of salaries, buildings, and equipment. Such schools would not need grants and would probably not desire to receive them. There were other schools which, while showing a satisfactory standard of educational efficiency, could not hope, with their present resources, to reach the standard desired by the Board in other respects. For such schools there seemed to be only two alternatives—either to obtain public money in order to remedy financial deficiency, or else to be content with a lower standard than the Board might consider desirable in the matter of efficiency other than educational. Even if the Board were willing for the present to make allowance, they could not contemplate with satisfaction the acceptance by private schools of a position of permanent inferiority in any respect. For, while they would urge that, so far as possible, the educational control of the principals should remain unfettered, they fully recognized that with regard to salaries, equipment, and buildings, the schools should endeavour, so far as their resources would permit, to reach any standard that might be indicated by the Board. The Joint Committee therefore favoured the first of the two alternatives, and suggested that approved private schools should be eligible to receive grants in aid from the Board of Education. If this proposal were accepted by the Board it was hoped that private schools would be allowed to accept or refuse grants as their circumstances may determine. Those which received grants would, of course, be required to submit to the Board audited statements of their accounts. Such statements might, perhaps, be permitted to include (*a*) a salary for the Principal on a scale comparable with the salaries of head masters or head mistresses of other secondary schools of the country; (*b*) either interest on capital, or an allowance each year towards a sinking fund. The Board might perhaps, in each case, fix a proportion of the total funds of the school as the minimum amount to be paid in salaries to the staff, and might make a grant to augment these salaries up to the scale for the county or district, or up to a certain percentage of the amount paid out of the school funds.

Mr. Rawlinson supported the remainder of the resolutions. He thought it was most important that private schools should be preserved in any State system of education that was contemplated. He was especially interested in the question of pensions for teachers in secondary schools, and he hoped that private schools would be under no disabilities in this respect. If assistants in private schools were debarred from a privilege accessible to those in public schools it was manifest that principals of private schools might find it difficult to obtain assistants and might have to be content with those who could not obtain posts in public schools.

Mr. Rushbrooke, as Dean of the College of Preceptors and a member of the Federal Council, spoke in favour of the resolutions. The one referring to scholarships at private

schools was in substance recommended by the Bryce Commission, but the Committee felt some hesitation in offering this proposal. For, if an obligation were laid on Local Authorities to allow scholarships to be held at approved private schools, it seemed to follow that private schools should be compelled to accept scholarship pupils. But some private schools might find it impossible, or undesirable, to accept such pupils — *e.g.* non-local schools, which took boarders only, and schools which avowedly provided for pupils of a certain social class. If schools of the latter kind were to admit scholarship pupils, they might lose their present ones. On the other hand, there was no doubt that many private schools would be glad to have the privilege of receiving scholarship pupils. [In making this proposal the main object the Committee had in view was to enable pupils in private schools to compete for scholarships, and, if successful, to hold the scholarships at their own schools.]

In replying, Mr. Pease expressed his pleasure at receiving the deputation and thought it would be best if he took the resolutions in order and commented on them. He felt that the time was not ripe for anything in the nature of compulsory inspection of private schools: this would naturally be resented in many cases, and he was afraid the Board had no power to make even a survey of the private schools of the country. With regard to the question of inspection free of charge to the schools, he thought that the members of the deputation would be interested to know that he had quite recently been able to arrange for twenty preparatory schools per annum to be inspected free of cost. More than that at present they were not able to undertake. One difficulty that private schools undoubtedly felt was that the reports of Inspectors were sent in full to the Local Education Authority. Thus the private affairs of the school might become public property. He was considering the question as to whether merely statistical information could be sent to the Education Committee and the full report only to those really interested in the matter.

With regard to Resolution 3, he must say that in the present state of public opinion there was no chance of grants being given to private venture schools. When public money was given there must be public control. Grants of public money might some day be given to private schools, but the time was not yet. Education Authorities could now allow scholarships to be held at private schools. It had been suggested that assistant masters and mistresses in approved private schools should be eligible to participate in any pensions scheme applicable to assistant teachers in secondary schools, but at present the committee in charge of this matter only recommended that those teachers in grant-earning schools should benefit. It was, however, suggested that teachers in other schools might come within the scheme by themselves paying 10 per cent. of their salaries towards the Pension Fund. With regard to the other resolutions, he might remark that it was already the custom of the Board to judge a school primarily on its educational efficiency, and he thought it might be possible to arrange matters in harmony with these resolutions.

The deputation had every reason to be gratified with the courteous manner in which they were received, and with the earnest and sympathetic attention with which the Board listened to their proposals. But it became evident that, for the present, the Board is not prepared to attempt the task of bringing the private schools of the country into a national scheme of education. It may be that the cloudy political atmosphere is unfavourable for the consideration of proposals which involve the expenditure of public money. Or, possibly, the magnitude of the task obliges the Board to give careful and prolonged consideration to ways and means before committing itself to so difficult and laborious an undertaking. But, whatever disappointment may be felt at the delay, it has been made clear that private schools are willing to do their part in producing an orderly educational system; and it may be hoped that in the near future the schools and the Board may be found working hand in hand towards the attainment of that end.

SANE SEX TEACHING.

IV.—IN GIRLS' SCHOOLS.*

By Dr. Helen Webb.

Everyone who is in charge of young people ought to take a wide view of life. They should retain the power of seeing it as a whole, and also be able to look back sympathetically to the periods which they themselves have passed through. So doing they appreciate the interdependence of every part, and realize more fully how "the child is father of the man," and that "the future does not come to meet us, but streams up from behind us over our heads."

If the nursery were more loyal to the schoolroom, and the school really prepared for the strain of adult life, the failures and disappointments which come to the ordinary men and women would be infinitely less numerous than they are. We all waste a most unnecessary amount of time and energy in paying for the mistakes of the past. Each must, of course, purchase his own experience, but the price paid need not be such as will cause bankruptcy. Yet in many lives it is little short of this.

Every time of life has its own needs and opportunities, on the wise fulfilment and use of which greatly depend strength and stability of character in the years which come after. Each has its own tide which "taken at the flood leads on to fortune," but which if neglected or turned into wrong channels will inevitably "bind" the individual in "shallows and in miseries."

The conditions of school life are unique and special. Here young things at a most impressionable time of life come together from every kind of home. From these they bring with them diverse experiences and interests of all sorts. Each sees life tinged with her own special variety of emotional colour. It is far from easy to deal wisely with this mixed population, and small wonder if the governor of such a colony should sometimes take refuge in ignoring those difficulties which can be kept out of sight. It is not wonderful if she easily persuades herself that all must be right because there is peace on the surface. Much less anxiety need be felt about such a community if it were known that all the girls who entered it had been, as little children, wisely taught. If it were known that, from the first, the questions which curiosity prompted them to ask had been answered in such a way as to inspire a reverent feeling towards the body, as the temple of the living soul, there might be more confidence for the future. Such teaching would probably have secured that reserve and reticence which is a strong defence against low and prurient habits of thought.

Unfortunately this is still the good fortune of only a few, instead of being the case of the majority. We have still amongst us a preponderance of those mothers who mistake the ignorance of their own children for innocence. The greater number also imagine that, because they themselves have never enlightened them, no information can have reached their children from other sources.

* For previous articles in this series, see April, May, and June numbers.

Of the futility of such a point of view we have lately had startling evidence. In a most valuable article in the *Bedrock* magazine we read of a girls' school in Germany where an inquiry was made as to how many knew anything about sex, and how those who did had come by their information. It was there elicited that out of sixteen girls two only had been spoken to on the subject by their mothers. The rest had learnt what they knew as follows: six from youths, three from girl friends, one from a beggar woman, one from a strange man, one from an aunt, one from a sister, and one from an uncle. Truly an astonishing revelation! and yet, from my own knowledge, I am certain that there are in England many schools which could not produce a better record. Just think of such knowledge coming in these ways, and of the form and spirit in which it was probably given! Think of it falling on the mental background of early adolescence just ready to receive an indelible impression! It is hard to imagine the irremediable havoc likely to be produced, and to picture the sacrilege of the whole situation.

It is related of a great Russian physician that he always refused to take charge of any patient who would not tell him all imaginable details of his past history and present life, as well as of the things which are generally regarded as relating to the health of the body. The ideal principal of a school should, I think, hold a somewhat similar view. She should not only be interviewed by the parents of her girls; she should try to make the fullest acquaintance with them, and endeavour to realize something of their outlook on life. From the mother of each girl, or from the woman friend who takes the place of mother, she ought to try to learn all she can about the girl. Amongst many other things she will then discover what the latter knows about the meaning of sex and of her duty towards her own body. She will also get some idea what degree of openness of speech there has been in the home from which the girl comes. If, as far as the mother knows, the girl is quite ignorant, the former ought to be asked to talk to her before she comes to school. She may not wish to do this. If her refusal is based upon prejudice it may be possible to convince her that she is mistaken. If, on the other hand, the mother pleads incapacity, the schoolmistress may ask permission to open up the question with the girl as soon as a suitable time presents itself. Most nice girls will be only too thankful to have an opportunity of hearing their questions answered rationally by someone on whose knowledge and wisdom they can depend.

It is hardly possible to say too strongly that a first discussion of this subject with a girl or boy at the time of puberty is only *faute de mieux*. There are, of course, things to be said then which could not have been said before, but they ought to come merely as additions to instruction which had been given earlier. The child who has learnt gradually will be spared much nervous excitement. Neither is she as likely to dwell upon the question over much and to give it undue importance, an inevitable outcome of unsatisfied curiosity.

It is not, however, knowledge alone which keeps people straight. Some who possess the most accurate scientific grasp of it are the least ready to apply their knowledge in the conduct of their own lives. What is known must be illuminated by principle and supported by the wider interests and enthusiasms of life. These latter, which carry people outside of themselves, make them take thought for the good and happiness of others and are fatal to a selfish point of view.

With the fuller physical development of girlhood comes increased self-realization. Close upon this, however, follows the deeper realization of others. Altruism is as characteristic of adolescence as is the self-absorption of which we read so much more in books. At this time of life the whole world seems to await us, but its treasures must be shared with our companions and friends. We even long to help those to whom society has given little or no chance, so that they also may enjoy the great inheritance of humanity. The horizon is far away, and life looks well worth living. "There's a wind on the heath, brother," let us be up and off! On the understanding of all this by the elders, and their sympathetic guidance of the growing girl, greatly depends the nervous balance of the future woman.

Much may be gained by having, in connexion with a school, some scheme for the help of others in which the girls can join, and with which they can continue their connexion after leaving school. The first time I heard of this being done was many years ago. A wise and successful schoolmistress started, in connexion with her school, a plan for befriending the children of some of the many railwaymen who lose their lives in the public service. Each girl in the school became the friend and helper of one or two such orphan children. She corresponded with or visited them, sent from time to time carefully mended toys to the little ones, and made clothes for her *protégées* out of the sound portions of her own rejected garments. In short, she did many things for these poor children such as an elder sister might do in a family where mouths are many and money scarce. Girls' clubs and associations with various kinds of settlements, with a wider intellectual outlook, now take the place of such private schemes. They are, perhaps, more in consonance with the spirit of the time.

In any of these ways girls can share what we are more and more realizing to be the most precious of possessions—their knowledge, enthusiasms, and spiritual forces — with those whose opportunities are scantier. In so doing they also widen their outlook on life, and strengthen habits of unselfishness in thought and action. Whether a girl reaches early adolescence so far equipped for the journey of life, and only requiring the instruction needed at that special period, or whether we have to deal with the wrongly informed or quite ignorant, let us remember that in speaking to them on their sex and its functions we should be as matter-of-fact as possible. Emotion and sentiment ought to be entirely avoided. Let us remember that none of the bodily functions are as closely linked up with the mind, or as readily affected by it, as are those which subserve the purposes of sex. The more they are kept out of consciousness the better. This, of course, has been the excuse of those who plead for a criminal neglect of all instruction on the subject. Knowledge, however, is far safer than ignorance, but it ought to be kept in its proper place and relegated to the background of consciousness. When what is necessary has been said let us close the incident and let it be felt that these things, in common with our highest religious emotions, are to be kept in the sacred inner chambers of life. So kept, they are a source of strength and not of danger. They must not be under constant study and inspection, though related problems need discussion with parents or teachers from time to time.

Reading aloud is a much neglected accomplishment, which ought to be acquired by everyone, and good fiction teems with instances which any wise mother or schoolmistress can make use of as starting-points for discussion of social problems, about which all older girls ought to be informed. No one can read such books as "The Heart of Midlothian," "The Scarlet Letter," or "Adam Bede," without coming upon things which give an opportunity for talks on vital points. If girls for the first time read such books alone they are much less likely to gain from them a wise view of the circumstances than they will do from the passing comments of some older and more experienced person. If read by themselves the situations described may give rise to brooding and discussion with their contemporaries. Besides, priceless occasions are lost for helping them to form wise judgments.

There are many other ways in which the moral atmosphere of communities can be kept fresh and wholesome and daily life purged of sentimentality. One of these is, in my opinion, the co-education of boys and girls. Under this arrangement, which resembles the family, good comradeship takes the place of mystery between the young people of the complementary sexes. They each find out that other people's brothers and sisters are much the same as their own, and working shoulder to shoulder a great deal of the nonsense gets knocked out of both boys and girls. On this, however,

I shall not here enlarge, as the subject before us is that of *girls'* schools.

Ono cannot lay too much importance on the prevention of those excessively sentimental friendships or *Schwarmerei* so common among grown-up girls. I know places where these are most effectively and satisfactorily nipped in the bud by school regulations which necessitate everyone doing things with everyone else in turn. In the course of each term, for instance, each girl takes a walk with every other, and in no two consecutive terms are the same girls allowed to share the same bedroom. If such precautions are carried out without fuss and come into the regular routine of school arrangements, they prevent unwholesome absorption of one girl in another, and help to keep the moral atmosphere stirred and fresh all the time.

The formation of all possible links with many interests is also a great source of moral fresh air. We only see what we learn to see, and hear what we learn to hear; and the majority of people, if they have not when young had their eyes and ears opened by opportunities of seeing, hearing, and appreciating what is beautiful and interesting, pass their whole lives with many intellectual powers in a state of atrophy. In this way they come to possess a paucity of interests and of food for thought, and when the trials and temptations of life come upon them have but a poor supply of mental furniture. So miserably equipped are they that when they would turn from worries and troubles they have no ideas to fill their thoughts. When, later in life, they meet with beautiful pictures or sculpture, architecture or scenery, it means little to them. One has only to watch people sightseeing abroad to realize this. For one person who will carry home a memory of the details of some cathedral such as will be to him a lifelong possession, there are thousands who, like a certain lady, always remembered Milan as the place where she lost her umbrella, or a man who thought of Venice as the town where he had eaten a particularly good dinner. This is what may be called squalor of mind, and is a cause of much real immorality. It is not likely to be the lot of those who, when young, have from time to time been taken to see one or two good pictures, of which they have studied the details and later given an account. Neither is it likely to overtake those who, when young, have heard good music, or seen good architecture at the same time as they have read its history and romance. Such children get their minds so well stored and furnished with larger interests that there is little room for thoughts about things which are better kept in the background. They also possess the power of constantly adding to their store, and are in possession of standards of comparison which give interest to new experiences.

When the mind is thus well fed with knowledge, and the hands and head practised in all kinds of delightful usefulness, life is not long enough for the accomplishment of all that we desire to see and do and learn, and the chances of getting into mischief are reduced to a minimum.

In these latter days, since the public have heard so much both about the white slave traffic and venereal disease, there is a growing feeling that before the age when girls leave school and go out into the world they should be aware of the existence of these great evils. As soon as any girl is old enough to go anywhere alone she ought to be strictly warned not to make acquaintance with any strangers or to accompany any unknown person anywhere on any pretext whatsoever. She ought to know that these commands especially apply to women in nurse's uniform or nun's dress and to strange clergymen. I should myself be inclined to tell her something of the reason for this order.

Knowledge of the existence of the diseases generally communicated by vicious practices need not be given till much later. No young woman of marriageable age, however, ought to be allowed to mix in the world without knowing that there are such diseases, and that those men who run the risk of contracting them are, morally as well as physically, unfit to associate with. We all know that, in those circles where women demand the highest standard of morality in men, that standard is more nearly attained to.

Girls before the age when they leave school ought also to be taught that they are not without responsibility in this matter. They ought to know that both by dress and behaviour women (often quite unintentionally) put stumbling-blocks in the path of the men with whom they associate. To avoid what is harmful in this respect is no small part of the way in which women can help to raise society to a higher plane.

REVIEWS.

The Future of Education. By F. Clement C. Egerton. (3s. 6d. net. Bell.)

Like most writers on the future Mr. Egerton exhausts too much space in criticizing the present. He concerns himself mainly with the educational system of this country, and has little, if anything, to say in its favour. "Up to the present education has proved a failure from every conceivable point of view." "Our schools under the present regime are a disgrace to the nation." Teachers will be surprised to read the following paragraph:

> But the chief enemy of education, and the most insidious, is often the teacher himself. No section of the community is so filled with petty jealousies, so foolishly unconscious of its defects, so absurdly conscious of its merits, as the teaching profession. It is continually placing itself between the child and real education and shouting "I am the one consideration." It is for this reason that nearly all the difficulties with which we meet in making laws about education centre round the teacher. No progress will be made till he is removed from the unnaturally important position which he has succeeded in securing for himself.

These terrible teachers tyrannize over the whole country. There is no power that can keep them under, for "the easily eluded requirements of the Code and the Government Inspectors" do not seem to count. On the other hand, elsewhere in the book the rigidity of regulations is held to contribute to the general inefficiency that marks our educational system as one that "is absolutely rotten from beginning to end."

When we wonder how teachers use this power that they have acquired, we are not long left in the dark. They want nothing more than their own miserable ease. They have no educational ideals. "The one educational reform that appeals to teachers, as a whole, and the only one, is that of increased salaries for themselves." It will be seen that all classes of teachers appear to be included in this condemnation, but it must be admitted that the text does rather discriminate a little against the elementary teachers. These come "almost without exception from what may be called the lowest section of the lower middle classes." But Mr. Egerton can be magnanimous to the elementary teacher. Humble birth "is not by any means a fact in his disfavour, but it is significant." It may, indeed, account for the melancholy fact that in the case of elementary teachers "their intellectual resources are practically nil, and there is nothing for them to fall back upon but drink."

In face of all this one is surprised to learn that Mr. Egerton has himself been a head master—in an elementary school. But to be sure he was not like those others. We are anxious to be fair to Mr. Egerton, and the reader cannot but observe that we leave him to tell his tale as far as possible in his own words. "A clerical manager once told me that I was too much of a gentleman to be a teacher. He did not mean it as a compliment but as a disqualification."

Some of Mr. Egerton's friends tell him that he has been exceptionally unfortunate in the elementary teachers that he has met, others assure him that the picture he gives us is not overdrawn. We must candidly admit that all that Mr. Egerton tells us of his personal experience bears the stamp of truth. But we do think he had been unfortunate, and we cannot bring ourselves to accept his generalizations.

Turning for comfort to the future we find that the three essentials are (*a*) the recasting of the traditional curriculum, (*b*) the acceptance by society of the educational ideal, and (*c*) of course "the evolution of a new type of teacher." As

already hinted there is hardly enough about the future to justify the title of the book. But when Mr. Egerton does lift the veil the picture we glimpse is not very alluring to the teacher who ranks himself as a mere professional man. "The school will not open at nine and close at five; it will open at seven and remain open till night." We had always thought that the future was to be a time of abundant leisure, and not even the equalization of salaries that Mr. Egerton promises us can reconcile us to this day-labouring. With the optimism of a prophet Mr. Egerton thinks it "probable that a great deal of this work would gladly be done voluntarily." He is probably right in setting before himself the ideal of a profession of teaching in which the members regard their work as a vocation. But he must deal in geological units of time when estimating the rate of evolution of this new type of teacher in such numbers as to supply the total needs of the world.

Apart from the violence of his attack upon the present state of affairs, and his vague optimism for the future, Mr. Egerton has much to say that is sound and sensible and even helpful. The chapter on Vocational Education is sound, but we are surprised to find that our author regards vocational bureaux as being merely at the stage of being "suggested." The troublesome matter of sex is sensibly treated. The chapter on Education out of School is excellent, and Education and the Small Child is remarkably fresh and stimulating. The book has quite an important appendix in which information is supplied on such diverse matters as the Little Commonwealth, Binet's Tests of Normality in Intelligence, and A Form of Dossier for Individual Child Study. Then there is A Suggested Institute of Educational Science that the Teachers' Guild may find of value in its latest development. There is a useful bibliography and an index.

In Defence of What Might Be. By Edmond Holmes. (4s. 6d. net. Constable.)

In all friendliness let us say at once that we are getting too much of Mr. Holmes. In this book he leads us to understand that the sale of his "What is and What Might Be" greatly exceeds what is usual in the case of professional books on education, and we are sincerely glad to hear it. The work has been universally recognized as a valuable contribution to the general literature of education, and all who are interested in this subject will rejoice that its merits have been recognized in the way that is most pleasing to publishers and not displeasing to authors. It was well received by the Press, and the matter might very well have been left to rest there. When a man has shot his bolt and the critics have had their say, it is well to leave the public to decide. It is seldom advisable to reply to critics, save on matters of fact. But here we have a book as large as the original work, replying to various criticisms that were offered in the ordinary course. There does not appear to have been anything malicious or unfair in any of the criticisms, and it must be admitted that Mr. Holmes replies with good temper and in admirable taste. Our regret is that he should have replied at all. The public was interested in his first book. They took less notice of its successor, "The Tragedy of Education," and with the present volume we fear that people will be frankly bored.

Mr. Holmes claims that he writes literature, while the professional "educationists" (our author never grudges them the quotation marks) write mere science or rather pseudo-science. We have no objection to admit the claim so far as the original work is concerned; but the book at present under discussion is rather journalism than literature. It is one thing to write a book on Education, it is quite another to write an equally bulky volume on Mr. Edmond Holmes and his critics. It is not as if we were dealing with a new evangel. Mr. Holmes himself proclaims that he makes no pretensions to have produced a new theory of education. His great aim is the laudable one of getting people to realize and to practise the admirable doctrine of self-realization. We do not see how he is going to further this aim by dreary discussions of aspects of Herbartian theory that have no longer any vitality. No one understands better than Mr. Holmes himself the need to seek out the positive and let the negative alone. Indeed, he himself has a set of quotations from Herbart illustrating the truths set out in "What is and What Might Be." Surely he is much better occupied in bringing out the underlying truth than in magnifying differences and splitting hairs with his critics.

Mr. Holmes cannot help forgetting now and again the critics that he is dealing with, and when this happens he drops naturally into something worth while. This is particularly noticeable in the chapter on The Decadence of England. With the theological parts of the book we are not here concerned, but the chapter that our author has written, to all appearance very unwillingly, on Ways and Means rouses our interest and commands our sympathy, because it gives the reaction of a first-class mind on the practical problems of the school.

There are appendixes—no fewer than nine of them. With most of these we have little patience, and we fear the public will have less. To make academic controversy interesting to people in general it must be treated with a degree of acrimony that is utterly foreign to Mr. Holmes's spirit.

OVERSEAS.

The recent elaborate inquiry carried out by Prof. Hanus and his associates in connexion with the educational system of New York appears to have infected the educational world across the Atlantic with the investigation bacillus. There is now an investigation into the training of teachers, and another into the rating of teachers, while a third has been instituted into the duties and qualifications of a group of persons known vaguely as "school officers." It is interesting for us to note that it has been the custom in New York City to rate teachers as A, or B+, or B. "It is contended that these marks are arbitrary and represent different standards in the minds of different individuals, that they have a bad effect on the teaching force, producing jealousy and discouragement, that they afford no opportunity for recognition of excellence in special lines, and that high ratings are given with too great frequency. It is proposed to rate teachers as satisfactory or unsatisfactory." There is a fine simplicity about this grading that cannot fail to command the respect of everybody—except perhaps those teachers who are rated as unsatisfactory. We cannot, in our most optimistic moments, pretend that there are no unsatisfactory teachers on our side of the Atlantic, but we do not see that it would mend matters much by labelling them so. No doubt the American motive may be *pour encourager les autres,* but one would have thought that the unsatisfactory ones were more in need of encouragement. We shall watch with interest the development of this new plan of official truthfulness in labelling.

Prof. D. A. Anderson, of the University of Washington, Seattle, is meanwhile making an investigation on his own account into "Teachers' Improvement during Service." There appears to be little prospect that our future teachers will be allowed to stagnate in the placid way that has been possible to the present generation. They will be expected not merely to graduate with a respectable degree of attainment, but they will be expected to give some sort of evidence that they maintain their academic and professional efficiency throughout their entire career. Even in England it is getting common for conscientious teachers to give up some time to attend lectures, or even to take a short course at college, in order to keep abreast of the newer developments. We are told that in a certain well known English training college for women it is getting quite customary to have a few students every year who are of mature years and experience. Their aim, we are told, is technically known as *rejuvenation.*

Another investigation, this time by Prof. R. W. Husband, of Dartmouth College, U.S.A., deals with the relation between distinction in academic studies and interest in outside

activities. The results would appear to refute the popular belief that those students who rank high in their studies are not generally interested in outside activities. It is only athletics of the most vigorous kind that claim the whole attention of men who rank low in the academic subjects.

An investigation carried on by the Illinois Association of Teachers of English has considerable interest for all teachers of that subject. The problem was whether composition benefited more by concentration on written work or by a combination of written and oral work. The investigation was of a very practical character. "One group of high schools gave the pupils (second term freshmen) written exercises only, while another group gave a combination of two-thirds oral and one-third written work. At the beginning of the semester, at the middle, and at the end all pupils were given the same written tests, and the results, together with a detailed account of the conditions surrounding the work, were reported to a central committee. The results were strongly in favour of greater emphasis on oral work, and the Committee recommends that oral composition be made a regular part of the high school English work throughout the four years."

The St. Louis Educational Authorities are honourably known throughout the States as a particularly energetic and "aggressive" body. They have appointed Dr. J. E. Wallace Wallin, Director of the Psycho-Educational Clinic in their public schools. His offices are to be in the grounds of the Harris Teachers' College, and the teachers who are being trained there will have the benefit of the new director's lectures and demonstrations. Already five hundred exceptional children have been segregated at St. Louis in special classes, and this number will be rapidly increased to at least a thousand. "Each child will be given a psychological, sociological, pedagogical, hereditary, and medical examination. It is expected that a staff of assistants commensurate with the growing needs of the clinic will gradually be organized, and that, eventually, the clinic organization will include a bureau of vocational guidance. The clinic aims to serve as an educational, social, and vocational clearing-house for the community." Mr. Egerton, who has just assumed the prophet's mantle in things educational, should keep a keen eye on St. Louis.

The University of Texas is not to be left behind in the investigational race. In September it opens a pedagogical clinic. "Two groups of freshmen will be selected, one from the best, the other from the poorest students in the class, and intensive studies will be made of the learning and other abilities of individual students. Not only will the ordinary physical and mental tests be used, but an attempt will be made to obtain a complete record of the family history, the early family life, and the elementary- and secondary-school activities and interests." There seems every chance that the "poorest students" at Texas are going to have a strenuous time. The University hopes that the disagreeableness of the investigation will be compensated for by the increased efficiency with which the education of these low-rated students may be carried on.

Biology of Sex. By T. W. Galloway, Ph.D. (2s. net. Harrap.)

When giving evidence before a section of the Elementary Education Sub-Committee of the London County Council, appointed to inquire into the teaching of sex hygiene in schools, one of the witnesses remarked that this subject was now in the minds of everybody. The statement is confirmed by the recent appearance of a large number of books designed to impart information to young people or to help teachers to teach them about the facts. Most of these books seem to suffer from very grave defects, perhaps inseparable from the first attempts of people to find their way in untried paths of teaching; but in the one to which this notice refers a welcome change is seen. It is, indeed, admirable. The author is Professor of Biology in the James Millikin University. He knows how to explain the scientific side of his subject, and he has a sound knowledge of human and pedagogical situations. The specially good points of the book are numerous. To begin with, it is absolutely free from the strange forms of sentimentality with which most writers on this subject seem to be cloyed up. The facts of life are quite enough to strike awe into the heart of any one who really understands and realizes them without the mawkish appeals with which they are usually overloaded in books of this kind. Then Prof. Galloway points out that sex ought not to be made the subject of special solemn talks, given by parent or teacher quite irrespective of the child's needs at the moment or of his power to assimilate what he is told. This method, he reminds us, would be far less injurious in the case of mathematics, where we should never dream of attempting it. He insists that the biological laboratory is the main place for learning the biological facts, and that the instruction given there should be helped out by making a good use of experiences in the family and amongst the children's pets. He shows that, for perfect success, the co-operation of the child's parents is an absolute necessity, for his first questions must be truthfully answered, and these questions are generally asked before he comes to school.

Besides all these good points, the book deals successfully with that most intense focus of adolescent curiosity, the sexual act, in a perfectly natural and simple way. Most books shroud it in a veil of mystery, and are bound, therefore, to leave the young inquirer with the sense that, however ostensibly frank we may be, it isn't right or proper to wish to understand the whole of this vital subject. They drive the pupil to believe there is a residuum, knowledge of which would constitute immodesty, whereas Dr. Galloway will help parents and teachers, for it is for them, and not for the pupil, that his book is written, to show them how joyful, and proper, and helpful all accurate knowledge is.

It is difficult to indicate all in so good a book that deserves praise, but two minor points—insistence on the use of scientific names for all organs and processes, and a strong recommendation that boys and girls should not be segregated too early, but should be allowed to be thoroughly familiar with the sight of each other's bodies while they are quite young—will both appeal to healthy instincts.

Prof. Galloway dedicates this book to his wife, "at once my most sympathetic and effective critic"; and it is pleasant to think that, if this generous tribute is deserved, the book is so appropriately the co-operative work of a man and a woman.

History in Schools.

The Board of Education have issued (Circular 833) a revised edition of their "Suggestions for the consideration of Teachers and others concerned in the work of Public Elementary Schools" on the Teaching of History (1d.). They say that they have received a considerable number of criticisms and proposals for the improvement of the original Circular from teachers, Inspectors, and other persons concerned or interested in public education, and they have manifestly turned such communications to practical account. The "Suggestions" as they now stand are very full, thoroughly to the point, and liberally conceived. Given diligent and intelligent teachers and broad-minded Inspectors, they should certainly effect a great improvement in the teaching of history.

In the introductory remarks the Board show themselves quite alive to the immense difficulties of the teaching of History in the elementary schools: the age of the children and the character of the historical matter, the widely different circumstances of schools and of the children, unwieldy classes, restricted time, paucity of appropriate textbooks, the insufficiency of teachers' libraries in remote places. The remedies they suggest for such difficulties are very reasonable so far as they go, and it is not easy to suggest more ample or efficient expedients. The detailed suggestions, both for junior and for senior classes, are wisely considerate, and they leave a very free hand to the teacher. The only point that seems to need a caution is in connexion with the working in of local history. Let us work in local history by all means, but the amplitude of some local histories suggests that here it is very possible to waste time on things that are comparatively trifling.

Looking at the situation generally, we may indicate one or two points for consideration. The Board is entitled to take it for granted that our young learners of history are tolerably expert at reading, but we ourselves are scarcely justified in making the same large assumption. The historical matter requires all the student's attention, and the mere effort of reading should be reduced to a minimum. We would, therefore, lay stress on decided facility of reading as a highly important preparative for the beginner in history. Such preparation would facilitate immensely the reading of stories of a more or less historical character, whether in school or at home, and it would reduce materially the reluctance of children out of school to take to reading. Once more: we would recall the words of Viscount Bryce in his inaugural address at the Conference of Educational Associations in January last: "The salaries of teachers of every grade are inadequate. . . . The teacher is in many schools worked so hard as to take out of him the force and freshness essential to the best kind of teaching. His intellect needs to be fed by reading, and by leisure for thinking on what he reads. As streams keep a lake full and enable it to feed a river, so a mind which is always being called upon to give out needs to be fed and stimulated by fresh facts and fresh ideas." "The last remark," says *History* (April–June, 1914, page 68), "applies with particular force to teachers of history. Those instructors of the coming men and women of the race who wish to keep abreast of modern research have little enough time for relaxation." And we would add that they have little enough income to afford even a modest minimum of an historical library.

A little more remote is the question of the suitability of textbooks in other respects than mere language. It is obvious that the textbooks ought to be accurate in well established facts and well abreast of historical research. Many textbooks require revision on both points. It is for the Inspector to see to this, if the teacher himself has failed to select the right kind of book.

Animal Life by the Seashore. By G. A. Boulenger, D.Sc., F.R.S., and C. L. Boulenger, D.Sc. (5s. net. Country Life.)

Even without the letterpress, the splendid plates of photographs and equally fine outline drawings, which illustrate the work before us, would have gone far to enable the "long-shore naturalist" to identify his finds. Of these plates there are thirty-four, depicting about twice as many animals, while in the large number of text-figures the artist has usually succeeded well in the somewhat difficult task of giving all the lines required for a faithful picture, and no more. One thing, however, we miss in connexion with the illustrations: the size of the creatures figured is not indicated, and this is a point at the present day quite rightly considered of much importance. Our authors are writing for "educated laymen" interested in Nature, whom, however, they are careful to treat as beginners; consequently, we find that the book is not written in childish style, but at the same time all scientific terms are explained, and the many interesting and even—to a beginner—startling facts connected with seashore life are told in a clear and dignified manner. Owing, no doubt, to the number of books in existence on sea-shells and their inhabitants, but few comparatively are mentioned here. Only such animals as live below the water-line—or, at any rate, pass some time below it—are favoured by our authors; hence we find no reference to such interesting creatures—to mention two only—as the giant earwig of a few places on the South Coast, or the active little native cockroach, which acts as scavenger beneath the dry seaweed on the shore. In fact, a companion volume, "Life just above the Water-line," still awaits an author.

Wealth. By Prof. E. Cannan, M.A., LL.D. (5s. P. S. King.)

"Wealth" is the title of a very interesting and instructive volume by Prof. Cannan on the fundamental ideas which underlie the economic relations of everyday life and conduct. The book differs from most professed treatises on economic topics in being less abstruse, and in the absence of technical language and mathematical modes of exposition. It gives a plain, common-sense analysis of the foundations of the science of human well-being, rendered in a simple yet highly effective manner. Though it will not repel the general reader by abstract methods and unfamiliar terms, it is not the less solid in its treatment of problems of the deepest interest, and demands close attention in its exhaustive analysis of apparently simple phenomena. Prof. Cannan possesses a caustic style, which enlivens his argument by forcible phrase and illustration and brings home the truth to be inculcated. The book is professedly built up on his lectures on the elements of economics, and it constitutes a sound introduction to the basic ideas of economic science. Without the use of diagrams or formulae, principles are established by reasoning on familiar facts and by explaining the assumptions involved in matters of common acceptance. The work is not the less methodical, it is strictly logical in the selection and treatment of its subject-matter, and its mastery will be a valuable equipment for the detailed study of more specialized treatises on political economy.

The book aims at giving a clear insight into the broad elementary principles which underlie the apparently simple realities of economic life, but which by their familiarity are apt to be regarded as too obvious to call for explanation. It is to be hoped that it will be widely read by many of those who are not easily attracted by elaborate treatises on the so-called "dismal science." But these essays should prove an introduction to that necessary and profoundly interesting study, which deals with matters no citizen can afford to ignore. Every newspaper teems with articles and letters dealing with economic topics, expressing opinions on problems of vital interest to the nation, and a large proportion of these opinions indicate no special equipment for judgment on the profound social and economic issues involved. At no time has it been more necessary that there should be a wide diffusion of sound economic knowledge. Without it doctrines and measures of dangerous import are easily rendered plausible. A wide circulation and serious study of works penetrated with sound judgment and accurate knowledge, such as this small treatise displays, are perhaps the greatest desiderata of this age of social unrest.

GENERAL NOTICES.

FRENCH.

Six Contes. Par Guy de Maupassant. Edited by H. N. P. Sloman. (2s. 6d. Cambridge University Press.)

The text (84 pages) contains "Le Horla," "Le Trou," "Les Prisonniers," "Qui sait?" "Menuet," "L'Aventure de Walter Schnatts." Some teachers may hesitate to take "Le Horla" and "Qui sait"; but they must notice that this volume is intended for pupils of seventeen to nineteen years of age. The exercises (24 pages) comprise retranslation and Direct Method questions on the text, vocabulary, and grammar. The English of the retranslation may be good enough for a boy, but is hardly good enough for a grown man. What can be said of this? "A page of the book on my table had just turned over of itself; then, after a few minutes, another." The editor has a weakness for "get" and the colon. It is to be noted that the retranslation method is seldom satisfactorily carried out the quality of the English in most scenes is poor; here, at any rate, it has vigour. The grammar exercises are open to two objections—they are surely too elementary for pupils of seventeen and over: they are often old, unreformed-method questions disguised in French clothing. In one instance only has the reviewer found advanced questions on the text. The vocabulary (11 pages) is full, but not exhaustive; this is a wise plan. The volume is beautifully printed and bound. It is the first of a new series edited by Mr. A. Wilson Green.

Sentence Expansion. By Marc Ceppi and Henry Raymont. (Bell.)

Another ingenious book from the ingenious Mr. Ceppi. The object is to lead up to free composition. What sentence expansion is may be understood from "This is the house that Jack built," but Mr. Ceppi has more resources than the author of Jack's house. "J'ai rencontré un homme" grows into "Vendredi dernier, sur le pont de pierre qu'on a construit récemment près de X, j'ai rencontré un petit jeune homme blond, au nez retroussé, à l'air joyeux, marchant gaiment, la pipe à la bouche, portant une canne à la main droite et une petite valise à la main gauche." Besides examples and a classification of expansion, we have some extracts for analysis, the reverse process.

(1) *Le Curé de Village.* By Balzac. Edited by S. L. Galpin. (3s. 6d. net.) (2) *François le Champi.* By George Sand. Edited by C. Searles. (3s. net. Oxford University Press.)

These two volumes, of American origin, are well printed and bound. "Le Curé de Village" has ten pages of notes, chiefly on points of fact. "François le Champi" has thirty-one pages of notes (grammar and translation) and retranslation exercises and thirty-three pages of vocabulary. The introductions are of fair quality.

GERMAN.

Geschichte der deutschen Dichtung. By Hans Röhl. (2s. 6d. Leipzig: B. G. Teubner.)

Mr. Röhl has written this book with the object of interesting the older German boys and girls in the literature of their own country. He deals shortly with the most important epochs from the tenth century down to modern times. The life of the poet is touched upon only in so far as it is essential to the understanding of his work, and the aim of the author is to act as a guide to those who wish to read poetry and not merely to read about it. There is a useful index and table of contents. The book is to be recommended to a wider public than that for which it was originally intended.

"Siepmann's Advanced German Series."—*Prinz Friedrich von Homburg.* By Heinrich von Kleist. Edited by G. F. Bridge. (2s. 6d. Macmillan.) Also *Word- and Phrase-book*, 6d., and Key to Appendixes, 2s. 6d. net.

Mr. Bridge has edited this play with great thoroughness. There is an Introduction dealing with the period in history to which the play refers and giving a life of the dramatist. The notes are scholarly, and there are the appendixes to which users of this series are accustomed.

BOHN'S POPULAR LIBRARY.

We have received twenty additional volumes in this excellent series. (1s. net. G. Bell & Son.) The volumes are convenient to hold, the paper is good, and the type is clear and of a size easy to read; some of the volumes run to as much as 600 pages. The external appearance of the series is quite satisfactory, and justifies a position on the library shelves. As to the colour of the cloth binding, tastes may differ: we would have preferred a uniform binding instead of varying colours according to the nature of the book. Among the additional twenty volumes many readers will be especially grateful for the completion of the Barsetshire novels of an Anthony Trollope. A cheap and well printed edition of these was greatly wanted. Other volumes are Trelawny's *Adventures of a Younger Son*, Manzoni's *The Betrothed*, Poushkin's *Prose Tales*, Blake's *Poems*, Vaughan's *Poems*, and *The Arabian Nights*.

TECHNICAL INSTRUCTION.

Handbook of Technical Instruction for Wireless Telegraphists. (3s. 6d. Marconi Press.)

An essentially practical book, suitable for use by all who are training or intend to train as wireless operators. The descriptions of the working and arrangements of the several details of wireless plant are made as clear as possible, so that a beginner with only elementary notions of electrical principles should find no great difficulty in reading and understanding them. Many useful illustrations show details and complete apparatus as used in actual practice. Amateurs will find the book full of interesting and practical information.

SCIENCE.

Practical Physical Chemistry. By Francis W. Gray, M.A., D.Sc. (4s. 6d. Macmillan.)

One is tempted to wish that Dr. Gray's admirable little book had been somewhat more comprehensive in design; however, the fullest use has been made of the space allotted. Thirty-nine exercises, each of which is intended to be completed within two or three hours, are described, together with a certain amount of theory. The first thirty-five pages, devoted to a study of the subject of Accuracy, are particularly noteworthy; so sound a discussion upon the theory of errors, and the choice of methods dependent upon limits of error should prove of special value to chemists. The student is, however, expected to possess a fairly competent knowledge of the Calculus. A useful table indicating the order of Absolute and Relative Error in the measurement of certain commonly occurring quantities—weight, volume, density, temperature, &c.—has been included, together with equally serviceable tables of physico-chemical data. The new form of adiabatic mantle for use in thermochemical measurements as described on page 75 *et seq.* is most ingenious, and should find extended application. It is satisfactory to note that Hulett's new method for the purification of mercury is included (page 183) with the prominence which it deserves. The claim of the author that the matter is highly instructive and covers a wide field appears to be fully justified, and, in our opinion, Dr. Gray has made a very acceptable addition to the library of the student or teacher of physical chemistry.

Notes on Elementary Inorganic Chemistry. By F. H. Jeffery, M.A. (2s. 6d. net. Cambridge University Press.)

If employed, as the author suggests, merely for purposes of revision supplementary to an organized series of lectures, these notes will certainly assist the student in co-ordinating certain groups of facts. The information is sound, but necessarily somewhat incomplete and disjointed, and consists of a number of groups of rather bald statements. No attempt is made to give theoretical explanations of observed reactions; in fact, the existence of this portion of the subject is (we think inadvisedly) almost entirely ignored. The sequence is a little difficult to justify; for instance, acids, bases, and salts are discussed before oxides. However, in judicious hands, these disadvantages should not militate against the successful adaptation of the notes to the purpose for which they are intended.

HISTORY.

The quarterly magazine *History* (1s. net, Francis Hodgson), we are glad to note, continues to make excellent progress. While furnishing a careful record of current movements and results of historical study, it provides a variety of very able articles of different points of historital importance and interest.

"Vorträge der Gehe-Stiftung zu Dresden."—*Die Politische Bildung in England.* Von Ernst Schulze. (Mk. 1. Teubner.)

Dr. Schulze has written on social England before now, and he has a very fair knowledge of the working of English political institutions. It is well to hear the views of the intelligent foreigner upon our ways of administering our affairs, and incidentally upon our strong and our weak points. Dr. Schulze is struck by our devotion to politics: it comes as a good second to our devotion to sport. Interest in politics, however, is not the same thing as "politische Bildung," which includes "politisches Wissen, politisches Urteil, politisches Können, politisches Pflichtgefühl, and politisches Denken"; but we may be well content with Dr. Schulze's general estimate of our equipment. But alas! Parliament, and often the Government as well, lack principles to guide them: in the very constitution there is nothing that can be called "system," everything is compromise. Then we place such an extravagant value on the tradition of the elders; our Government Departments are not complete and compact (there is neither one *Arbeitsminister* nor one *Justizminister*); the whole machinery of the Constitution has gradually come into being without unity of plan, without testing and reorganizing intelligence, without smoothing and carefully improving hand. Again, we are terribly lacking in the psychological capacity of putting ourselves in the place of foreign folk (except when it is a question of ousting them): we fail to see eye to eye with the Indians and even with the Irish. But when we do fall stupidly into a bad corner we don't cry "treason" or distribute blame, but tighten our belt and fight our way out, and lay the lesson to heart for next occasion. Dr. Schulze also touches upon labour movements, education, &c., in their political bearings. He is of opinion that the Suffragettes have brought about a state of shameful anarchy ("einen Zustand beschämender Anarchie"). "The sole basis of political freedom is the habit of self-control." The lecture is very comprehensive, well informed, and reasonably judicial.

PUBLICATIONS RECEIVED.

EDUCATION.

The Edgeworths: a Study of Later Eighteenth Century Education. By A. Paterson. Clive, 1s. 6d.

The Future of Education. By Clement C. Egerton. Bell, 3s. 6d. net.

In Defence of What Might Be. By Edmond Holmes. Constable, 4s. 6d. net.

CLASSICS.

The Teaching of Greek at the Perse School, Cambridge. Board of Education, 1s.

Clio Enthroned. A Study in Prose-form in Thucydides. By Walter R. M. Lamb. Cambridge University Press, 10s. net.

Pons Tironum. Quem fecerunt R. B. Appleton et W. H. S. Jones. Bell, 1s.

Caesar: Gallic War. Edited, with Introduction and Notes, by T. Rice Holmes. In seven volumes, each 2s. General Editor, Rev. A. E. Hillard. (A new Clarendon Press Series of Classical Authors.)

Ovid: Elegiae Poems. Edited, in three volumes with Introduction and Notes, by J. W. E. Pearce. The same series as the Caesar above. Clarendon Press. 2s. each volume.

Caesar: Gallic War. Books, I, IV, V, and VI. Edited by E. S. Shuckburgh, and revised by S. C. R. Cambridge University Press, 1s. 6d. each volume.

FRENCH.

The School French Grammar. By Ernest Weekley. A separate issue of the grammar contained in Prof. Weekley's Matriculation French Course. Clive, 2s. 6d.

Primer of French Literature and History. With notes on Prosody and the History of the Language. By J. P. R. Marichal. Dent, 2s.

La Guerre de Cent Ans. (Histoire de France: III.) By E. Alec Woolf. Dent's Modern Language Series, 1s. 6d.

Les Poètes Français du XIXe Siècle (1800–1885). Etude Prosodique et Littéraire. Par Auguste Auzas. Oxford University Press, 3s. 6d.

The Sounds of the French Language. By Paul Passy. Translated with special texts for English-speaking students by D. L. Savory and D. Jones. Second edition, revised. Clarendon Press, 2s. 6d.

Colomba. By Prosper Mérimée. Edited by A. H. Smith. Bell, 2s. In the volume noticed the Introduction and Notes are in English. A duplicate volume, entirely in French, is also issued.

A Primer of Practice on the Four French Conjugations. By Henrietta M. Arthur. Bell, 6d. net.

Tests in French Composition and Grammar. By J. Mathewson Milne. Harrap.

The French Verb: Its Form and Uses. By William A. S. Nitze. Cambridge University Press, 1s. net; accompanied by Pupil's book, French Verb Blank, also 1s. net.

ENGLISH.

Routledge's New Dictionary of the English Language. Edited by Cecil Weatherly. 3s. 6d.

Modern English Literature: From Chaucer to the Present Day. By G. H. Mair. An expansion of the author's "Modern English Literature" in the Home University Library. Williams & Norgate, 6s. net.

Reading Julius Caesar. By W. F. P. Stockley. Longmans, 1s. net.

A Brief History of English Literature. By E. M. Tappan. Harrap, 2s. 6d.

Rhyming Thirds. Story in prose and verse by the boys of IIIA and IIIB. Edited by W. L. Paine. Bell, 1s. 6d. net.

The Theory of Poetry in England. By R. P. Cowl. Macmillan, 5s. net.

A Handbook of English. For Junior and Intermediate Classes. By D. B. Nicholson. Cambridge University Press, 1s. 6d. net.

Reading Aloud and Literary Appreciation. By Hardress O'Grady. Bell, 2s. net.

Picture History and Composition. Teacher's Handbook. By G. H. Reed. Harrap, 1s. 6d. net. (A Pupil's Edition, price 10d., has also been issued.)

English Composition: a Systematic Course for Use in Schools. By H. Pine. With Preface by Dr. F. H. Hayward. Ralph, Holland, Teacher's edition, 1s. 6d.; Pupil's edition, in two parts, 6d. each.

Macmillan's Sentence Building. Pupil's Companion. In seven parts, 4d. to 8d. each.

Julius Caesar. Edited, with Introduction and Notes, by the Rev. J. C. Scrimgeour. Macmillan, 3s.

Lamb's Tales from Shakespeare. Second Series. Edited by A. R. Weekes. Clive, 1s. 4d.

Bell's Reading Books.—(1) Settlers at Home: (2) The Tower of London; (3) Hereward the Wake. Each 1s.

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Old Christmas and Selections from the Sketch-book by Washington Irving. Edited by Arthur Burrell. Dent, 6d.

Lorna Doone. By R. D. Blackmore. Abridged and edited, with Introduction and Notes, by Wm. A. Warren. Sampson Low, 1s. net.

Westward Ho! By Charles Kingsley. With Illustrations by Gordon Browne. Abridged. Chambers, 1s.

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HISTORY.

Harrington and his Oceana: a Study of a Seventeenth Century Utopia and its influence in America. By H. F. Russell Smith. Cambridge University Press, 6s. 6d. net.

A Short History of the Canadian People. By George Bryce. New and revised edition. Sampson Low, 10s. 6d. net.

Harrap's Dramatic History. By Fred E. Melton. Teacher's Handbook. 2s. 6d. net.

Marie Antoinette. By Alice Birkhead. Harrap, 1s.

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Ancient India; From the Earliest Times to the First Century A.D. By E. J. Rapson. Cambridge University Press, 3s. net.

Bannockburn. By John E. Morris. A centenary monograph. Cambridge University Press, 5s. net.

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GEOGRAPHY.

Argyllshire and Buteshire. (Cambridge County Geographies.) By Peter Macnair. Cambridge University Press, 1s. 6d.

A Regional Geography of the Six Continents. Book I, Europe. By Ellis W. Heaton. Ralph, Holland, 1s.

The British Empire Beyond the Seas: an Introduction to World Geography. By Marion I. Newbigin. Bell, 3s. 6d.

Environment: a Natural Geography. By G. R. Swaine. Ralph, Holland, 1s. 9d.

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A Short Old Testament History: From the Creation to the Time of Christ. By the Rev. A. R. Whitham. Rivingtons, 2s. 6d.

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Biology of Sex. For Parents and Teachers. By T. W. Galloway. Heath, 2s. net.

The Renaissance of Motherhood. By Ellen Key. Translated by Anna E. B. Fries. Putnam. 5s. net.

SCIENCE.

The Theory of the Solid State: based on four lectures delivered at University College, London, March 1913. By Prof. Walther Nernst, of the University of Berlin. University of London Press, 2s. 6d. net.

Geological Excursions round London. By George MacDonald Davies. Murby, 3s. 6d. net.

A Junior Chemistry. By W. D. Rogers. Murray.

Chemical Calculations. By H. W. Bausor. Clive, 2s.

Chemical Calculations: Advanced Course. (Continuation of the above.) 1s.

(*Continued on page* 384.)

THE

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The Elements of Chemistry. By H. Ll. Bassett. With Introduction by Prof. W. J. Pope. Crosby Lockwood.
An Introduction to the Study of Organic Chemistry. By H. T. Clarke. Longmans, 6s. 6d.

NATURAL HISTORY.

Bird Study in Twenty-four Lessons. By W. Percival Westell. Cambridge University Press, 2s. 6d. net.
Nature in Books: a Literary Introduction to Natural Science. By J. Logie Robertson. Milford, 2s.
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MATHEMATICS.

Statics. Part I (Bell's Mathematical Series). By R. C. Fawdry. Bell, 2s. 6d.
A New Analysis of Plane Geometry, Finite and Differential. With numerous examples. By A. W. H. Thompson. Cambridge University Press, 7s. net.
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Arithmetic. By H. Freeman. Bell, 2s. 6d.
Mathematical Problem Papers for Secondary Schools. By Charles Davison. Bell, 2s. 6d.

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Philosophy: What is it? By F. B. Jevons. Cambridge University Press, 1s. 6d. net.
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Friedrich Nietzsche. By Georg Brandes. Translated from the Danish by A. G. Chater. Heinemann, 6s. net.

ECONOMICS.

The Feeding of School Children. By M. E. Bulkley. With Introduction by R. H. Tawney, Director of the Ratan Tata Foundation. Bell, 3s. 6d. net.

MISCELLANEOUS.

Careers for our Sons. A practical handbook to the professions and commercial life. Edited by the Rev. G. H. Williams. Fourth edition, revised throughout. Black, 5s. net.
New Lamps for Old in the Nursery. By L. H. M. Soulsby. Longmans, 2d. net.
Stories from Wagner's Operas. Told by Gladys Davidson. Laurie, 1s. net.
Grieben's Guide Books.—(1) Brussels and Antwerp; (2) Berlin. Williams & Norgate, each 1s. 6d. net.
The London Matriculation Directory. Clive, 1s. net.
Report on the Progress and Condition of the United States National Museum, 1913. Government Printing Office, Washington.
Board of Education Reports.—(1) The Science Museum and the Geological Survey, 5½d. (2) Statistics of "Intending Teachers," 2d. (3) Imperial Education Conference Papers: St. Vincent, 9d.; Grenada, 1s.

BOOKS ANNOUNCED.

By an error in the July number the price of Maupassant's "Contes de Guerre" was omitted. The volume is published by the Oxford University Press in the "Oxford Junior French Series," edited by H. L. Hutton, and the price is 1s. 6d., as of other volumes in the series.

Messrs. W. Heffer & Sons, Ltd., have in preparation a volume entitled "A School Dynamics," by G. W. Brewster, M.A., and C. J. L. Wagstaff, M.A.

The Cambridge University Press has in preparation "A Course of Music for Public and Secondary Schools," by Robert T. White, Mus.Doc. Oxon., Lecturer in Music, Goldsmiths' College, University of London.

The Cambridge University Press will publish shortly a "Manual of French Composition," by Dr. R. L. Graeme Ritchie, Junior Lecturer in French in the University of Edinburgh, and Mr. James M. Moore, M.A., Senior French Master in the Royal High School of Edinburgh.

MATHEMATICS.

Readers desiring to contribute to the Mathematical columns are asked to observe the following directions very carefully:—

(1) *To write on one side only of the paper.*
(2) *To avoid putting more than one piece of work on a single sheet of paper.*
(3) *To sign each separate piece of work.*

17742. (H. D. Drury, M.A.)—The line joining the middle points of the diagonals of a quadrilateral inscribed in a circle, cuts the sides of the quadrilateral, or the sides produced, in four points, whose distances, taken in order, from the point of intersection of the line with the third diagonal are in continued proportion.

Solution by C. H. Hardingham.

EF is the third diagonal forming a side of the triangle UVW.

XY joining the middle points of the diagonals bisects EF in O, and meets the opposite sides and the circle in PP′, QQ′, RR′.

If S is the centre, SXUY is cyclic, as the angles at X and Y are right, so

$$\angle XYU = \angle XSU,$$

which $= \angle XVW$,

for SX is perpendicular to XV and SU to VW as U is the pole of VW.

Hence XY, VW are cyclic, and

$$OY.OX = OV.OW,$$

which $= OF^2$ as (EVFW) is harmonic.

Now $OF^2 = OR.OR'$,

as circle on EF as diameter cuts original circle orthogonally.

Accordingly $OR.OR' = OY.OX$, and O is the centre of the involution PP′, QQ′, RR′, XY and

$$OP.OP' = OQ.OQ' \quad \text{or} \quad OP : OQ = OQ' : OP'.$$

17748. (B. Howarth.)—If m, n, p denote integers, prove that (1111 ... to mp terms) × (1111 ... to np terms) is not a factor of 1111 ... to mnp^2 terms.

Solutions (I) *by* Lt.-Col. Allan Cunningham, R.E.; (II) *by* W. N. Bailey.

(I) For shortness, let $f(z)$ denote $(r^z-1)\div(r-1)$. Then $f(z)$ = (111 ... to z terms) in the scale whose radix is r.

It is known that, if z contains the factors z_1, z_2, then $f(z)$ contains the factors $f(z_1)$, $f(z_2)$ once, and only once, and therefore contains their product when z_1, z_2 are mutually prime, but contains only the G.C.M. of $f(z_1)$, $f(z_2)$ if z_1, z_2 contain a common factor.

In the present case $f(mnp^2)$ contains both $f(mp)$ and $f(np)$ separately; but, as these two have the common factor $f(p)$, it follows that $f(mnp^2)$ can contain only the G.C.M. of $f(mp)$, $f(np)$, and not their product.

(II) We have to prove that

$$\frac{10^{mnp^2}-1}{9} \div \left(\frac{10^{mp}-1}{9} \cdot \frac{10^{np}-1}{9}\right) \quad \text{or} \quad 9\,\frac{10^{mnp^2}-1}{(10^{mp}-1)(10^{np}-1)}$$

is not an integer.

Assume $m \geqslant n$.

$$\text{Now} \quad \frac{10^{mnp^2}-1}{10^{np}-1} = (10^{mp})^{np-1} + (10^{mp})^{np-2} + \ldots + 1$$

$$= \left\{(10^{mp})^{np-1}-1\right\} + \left\{(10^{mp})^{np-2}-1\right\} + \ldots$$

$$\ldots + \left\{(10^{mp})-1\right\} + np,$$

$$\text{so that} \quad \frac{10^{mnp^2}-1}{(10^{mp}-1)(10^{np}-1)} = \text{an integer} + \frac{np}{10^{mp}-1}.$$

Now $10^{np}-1-9np = (9+1)^{np}-1-9np > 0$ if $np > 1$,

so that $$\frac{9np}{10^{np}-1} < 1 \quad \text{if} \quad np > 1.$$

Hence, unless $np = 1$, $\dfrac{9np}{10^{mp}-1} < 1$, since $m \geqslant n$.

The theorem is therefore true unless $p = 1$, and either m or $n = 1$, in which case the two expressions become identical.

17756. (R. F. Davis, M.A.)—PT is a variable tangent to a given ellipse, one of whose foci is S. A parabola is drawn having S for its focus and PT for its directrix. Prove that the common tangents to the two curves intersect on a fixed circle.

Solution (I) *by* W. N. Bailey; (II) *by* H. R. Wales.

Let S be a fixed point within a circle centre C, P any point on C, and AB the common chord of C and of the circle, centre P, passing through S.

Then, if N is the foot of the perpendicular from S on AB,

$$2PC.SN = \text{square on radius of } C - SC^2,$$

so that SN is constant, and AB touches a circle, centre S.

Reciprocate this theorem with respect to S, and we find that the fixed circle in question has S for its centre.

[The fixed circle is the locus of the image of the other focus S′ in the variable tangent PT; and its radius is equal to the major axis of the ellipse.—Proposer.]

(II) PT is a variable tangent to an ellipse focus S. A parabola is drawn with S for focus and PT for directrix.

To show that the common tangents intersect on a fixed circle.

Reciprocate with respect to S. The ellipse becomes the circle, centre O, and the parabola becomes a circle passing through S, and having its centre at any point C on the first circle (C is the reciprocal of PT).

The intersection of the common tangents becomes the common chord AB of the circles.

We have to find the envelope of AB for different positions of C.

Draw SN, SM perpendicular to the radical axis and line of centres respectively. H is the middle point of OC.

Let ST be a tangent to the circle, centre O;

$$\begin{aligned}\text{therefore}\quad ST^2 &= SO^2 - OC^2 = (SO^2 - SC^2) + (SC^2 - OC^2)\\ &= (OM^2 - CM^2) + (CB^2 - BO^2)\\ &= 2HM.OC + (CL^2 - OL^2)\\ &= 2HM.OC + 2OC.LH = 2OC.LM\\ &= 2OC.SN.\end{aligned}$$

Hence, SN is constant, so that the envelope of AB is a circle, centre S. If we reciprocate back, this circle becomes a concentric circle. Thus the locus of the intersection of the common tangents is a circle, centre S.

[Since S is outside the smaller circle, the reciprocal of the latter will be a hyperbola and not an ellipse, the question proposed applying equally to both curves.—R. F. D.]

17683. (W. F. Beard, M.A.)—Any straight line through the centroid of a triangle divides two of the sides in ratios whose sum is unity.

Solution by N. Sankara Aiyar, M.A.

Any line is $$l\alpha + m\beta + n\gamma = 0,$$
where $$l/a + m/b + n/c = 0.$$

It divides BC in the ratio $-(n \sin B/m \sin C)$;
similarly AC is divided in the ratio $-(l \sin B/m \sin A)$,
and AB in $-(l \sin C/n \sin A)$.

Now, since $$-\{n \sin B/m \sin C + l \sin B/m \sin A\}$$
$$= -b/m\,(n/c + l/a) = (-b/m)(-m/b) = 1.$$

Hence the theorem is true; due regard being paid to signs, this is true of *any* two sides.

17760. (W. F. Beard, M.A.)—PQRS is a quadrilateral; PQ, RS meet at A, QR, PS at B; any straight line cuts SP, PQ, QS at C, D, E; AC, BD meet RQ, RS, at F, G. Prove that E, F, G are collinear.

Solutions (I) *by* G. G. Morrice, M.A., M.D.; (II) *by* Lieut.-Col. H. W. L. Hime; (III) *by* W. N. Bailey.

(I) Project A and B to infinity, so that the quadrilateral PQRS becomes a rectangle.

Then, by similar triangles,

$$\begin{aligned}EM : GR &:: EM : DQ\\ &:: HM : HQ\\ &:: CK : CS\\ &:: MF : RF;\end{aligned}$$

therefore E, G, F are collinear.

(II) Take PAS as the triangle of reference, and let the cross of QS and PR be the origin of vectors, Q being then (1, 1, 0) and R being (0, 1, 1).

The arbitrary line cutting SP, PQ, and QS being (p, q, r), the points E, F, G will be found to be $[r, r, -(p+q)]$, $(r, r-p, -p)$, and $(0, p, -q)$ and $\begin{vmatrix} r & r & -(p+q) \\ r & r-p & -p \\ 0 & p & -q \end{vmatrix} = 0$. Whence, &c.

(III) Project AB into the line at infinity.

PQRS becomes a rectangle, and F, G the feet of the perpendiculars from C, D on QR, RS. Then

$$RG/GS.SE/EQ.QF/FR = QD/DP.SE/EQ.PC/CS = -1,$$

since CDE is a transversal of the triangle PQS.

Hence, by Menelaus' Theorem, E, F, G are collinear.

17757. (*Communicated by* A. M. Nesbitt, M.A.)—If S, S′ be two conics such that a quadrilateral can be circumscribed about S and also inscribed in S′, prove that $\Theta(\Theta^2 - 4\Delta\Theta') + 8\Delta^2\Delta' = 0$.

Solution by R. F. Davis, M.A.

Forty years ago the late Professor Wolstenholme pointed out that the invariant relation between two conics to which triangles (quadrilaterals, &c.) could be porismatically circum-inscribed could be very simply obtained by considering the special cases when one or more of the angular points of the triangle coincides with one or more points of intersection of the conics.

Thus a circum-conic of the triangle ABC

$$2yz + 2zx + 2xy = 0 \ldots (S'),$$

and the conic $x^2 + 2\kappa yz = 0 \ldots (S)$, to which AB, AC are tangents, and BC the corresponding chord of contact, are such that quadrilaterals can be circumscribed to S and also inscribed to S′ (one such quadrilateral having for its sides AB, BA, AC, CA).

The discriminant of $\lambda(x^2 + 2\kappa yz) + 2yz + 2zx + 2xy = 0$

vanishes if $$2(\lambda\kappa + 1) - \lambda(\lambda\kappa + 1)^2 = 0,$$

whence $$\Delta = -\kappa^2, \quad \Theta = -2\kappa, \quad \Theta' = 2\kappa - 1, \quad \Delta' = 2,$$

so that $$\Theta^2 - 4\Delta\Theta' = 4\kappa^2(1 + 2\kappa - 1) = 8\kappa^3,$$

and $$\Theta(\Theta^2 - 4\Delta\Theta') = -16\kappa^4 = -8\Delta^2.\Delta'.$$

17759. (H. D. Drury, M.A.)—The angles formed by producing the opposite sides of a cyclic quadrilateral are bisected, and each bisector is produced to cut the two remaining sides; show (1) that the four points so found are the corners of a rhombus, (2) that the side of the rhombus is half the harmonic mean between the diagonals of the quadrilateral, (3) that the centre of the rhombus lies on the line joining the middle points of the three diagonals of the quadrilateral.

Solution by R. F. Davis, M.A., *and* H. R. Wales.

Let ABCD be a cyclic quadrilateral whose diagonals AC, BD intersect in E, while the opposite sides BA, CD intersect in F, and AD, BC in G. Also let the line FMON, bisecting the angle at F, intersect AD, BC in M, N respectively; and let GVOU, bisecting the angle G, intersect BA, CD in U, V respectively.

Then AM : MD = FA : FD = AC : BD = GC : GD = CV : VD, and MV is parallel to AC.

Similarly UN is parallel to AC, and UM, NV to BD. Thus MUNV is a parallelogram.

The triangles FUM, FVM are congruent as the angle

$$\text{FUM} = \text{FBD} = \text{FCA} = \text{FVM};$$

thus MU = MV and FU = FV, so that MUNV is a rhombus and FOG a right angle (1).

Moreover,

$$\text{UM} : \text{BD} = \text{AM} : \text{AD} = \text{FA} : \text{FA}+\text{FD} = \text{AC} : \text{AC}+\text{BD} \ldots (2).$$

The point O may now be regarded as the centroid of masses $\lambda.\text{BD}$, $\lambda.\text{AC}$, $\lambda.\text{BD}$, $\lambda.\text{AC}$ at A, B, C, D respectively, whence (3).

17774. (T. Muir, LL.D.)—Resolve into factors

$$\begin{vmatrix} 1 & a & a^2 & a^3 & a^4 & a^5 \\ 1 & b & b^2 & b^3 & b^4 & b^5 \\ 1 & c & c^2 & c^3 & c^4 & c^5 \\ c^5 & c^4 & c^3 & c^2 & c & 1 \\ b^5 & b^4 & b^3 & b^2 & b & 1 \\ a^5 & a^4 & a^3 & a^2 & a & 1 \end{vmatrix}.$$

Solutions (I) *by the* Proposer; (II) *by* W. N. Bailey *and* C. M. Ross, M.A.

(I) The determinant being centrosymmetric resolves into

$$\begin{vmatrix} 1+a^5 & a+a^4 & a^2+a^3 \\ 1+b^5 & b+b^4 & b^2+b^3 \\ 1+c^5 & c+c^4 & c^2+c^3 \end{vmatrix} . \begin{vmatrix} 1-a^5 & a-a^4 & a^2-a^3 \\ 1-b^5 & b-b^4 & b^2-b^3 \\ 1-c^5 & c-c^4 & c^2-c^3 \end{vmatrix};$$

and as the first of these factors can be shown

$$= (1+a)(1+b)(1+c) \begin{vmatrix} 1+a^4 & a+a^3 & a^2 \\ 1+b^4 & b+b^3 & b^2 \\ 1+c^4 & c+c^3 & c^2 \end{vmatrix},$$

it follows that the second

$$= (1-a)(1-b)(1-c) \begin{vmatrix} 1+a^4 & a+a^3 & a^2 \\ 1+b^4 & b+b^3 & b^2 \\ 1+c^4 & c+c^3 & c^2 \end{vmatrix}.$$

We have thus only to resolve the three-line alternant which occurs twice, and, the result being

$$(b-a)(c-b)(c-a)\{1-\Sigma ab+abc\Sigma a-a^2b^2c^2\},$$

the fourteen factors of the original have been obtained.

The corresponding four-line determinant is equal to

$$(1+a)(1+b).(1-a)(1-b).(b-a)^2.(1-ab)^2;$$

and, generally, the corresponding $2n$-line determinant resolves into n^2+n+2 factors. Also, there correspond to the series of subsidiary alternants $|a^0b^1c^2|$, $|a^0(b^1+b^3)c^2|$, $|(a^0+a^4)(b^1+b^3)c^2|$,

$$|(a^0+a^5)(b^1+b^4)(c^2+c^3)|$$

similar series of higher orders.

(II) Consider the more general determinant of the same form with n numbers $a, b, c, \ldots k$.

Considered as a function of a, D evidently vanishes when we substitute b, $1/b$, 1, -1 for a. Also $(a-b)$ occurs as a square factor, for we get this factor when we subtract the second row from the first, and when we subtract the last but one row from the last, and similarly we see that $(ab-1)$ occurs as a square factor.

Hence we have factors of the form

$a-b$, ${}^nC_2$ in number; $a-1$, n in number;

$ab-1$, ${}^nC_2$ in number; $a+1$, n in number.

As the first two sets appear as square factors, the terms of highest degree in the product are of degree

$$2.{}^nC_2+4.{}^nC_2+n+n = n(3n-1).$$

But the terms of highest degree in the determinant are of degree

$$2[(2n-1)+(2n-2)+\ldots+n] = n(3n-1).$$

Comparing the coefficients of a^{4n-2}, we see that

$$D = (-1)^n \Pi(a-b)^2(ab-1)^2(a-1)(a+1) = \Pi(a-b)^2(ab-1)^2(1-a^2).$$

17767. (C. W. Adams, M.A.)—In obtaining the difference in height x between two points A and B in the same vertical plane, the theodolite telescope is placed successively at points E, F in that plane, its projection on the ground being at D and C respectively. The elevations of A and B from E are α and β; from F they are δ and ϵ. The depression of C from E is γ, and the lengths CD, DE, CF are a, b, and c respectively. Obtain an expression for the horizontal projection ν of EF, and an expression for x in terms of ν and the given quantities.

Solution by the Proposer.

Let u, z be the vertical projections of EF, FB, and w, y the horizontal projections of FB, BA.

Then
$$\begin{aligned} x+z+u &= (y+w+\nu)\tan\alpha, \\ z+u &= (w+\nu)\tan\beta, \\ x+z &= (y+w)\tan\delta, \\ z &= w\tan\epsilon, \\ c-u &= \nu\tan\gamma, \\ a^2 &= (b+u-c)^2+\nu^2. \end{aligned}$$

From the last two of these,

$$a^2 = (b-\nu\tan\gamma)^2+\nu^2,$$

and so the positive value of ν is

$$\nu = \{b\sin\gamma+\sqrt{(a^2-b^2\cos^2\gamma)}\}\cos\gamma.$$

Eliminating u, w, y, z from the first five equations, we get

$$x = \{\nu(\tan\alpha+\tan\gamma)-c\}/(1-\tan\alpha\cot\delta) - \{\nu(\tan\beta+\tan\gamma)-c\}/(1-\tan\beta\cot\epsilon).$$

17773. (R. F. Davis, M.A.)—A circle is given and a fixed point within it. Find the envelope of a variable chord the joins of whose extremities to the point are equally inclined to a given fixed direction.

Solution by E. R. Hamilton, B.Sc.

Take the fixed point as origin and the axis of x parallel to the fixed direction. Let ξ, η be the co-ordinates of the centre of the circle.

The equation of the lines joining the origin to the points of intersection of $lx+my = 1$ ..... (1)

with $(x-\xi)^2+(y-\eta)^2 = a^2$ ..... (2)

is $x^2+y^2-2(lx+my)(\xi x+\eta y)+c(lx+my)^2 = 0,$

where $c = \xi^2+\eta^2-a^2;$

that is to say,

$$x^2(1-2l\xi+cl^2)+y^2(1-2m\eta+cm^2)+xy\{2cml-2(m\xi+l\eta)\} = 0 \ldots (3).$$

The condition for these two lines to be equally inclined to the x-axis is $m\xi+l\eta-cml = 0,$

i.e., $\xi/l+\eta/m = c$ ..... (4).

The envelope of (1), where the parameters l, m satisfy relation (4), is $(\xi x-\eta y)^2-2c(\xi x+\eta y)+c^2 = 0$ ..... (5),

a parabola whose axis is

$$\xi x-\eta y-c(\xi^2-\eta^2)/(\xi^2+\eta^2) = 0,$$

and tangent at vertex $\eta x+\xi y-c\xi\eta/(\xi^2+\eta^2) = 0.$

[Writing (5) in the form $(\xi x+\eta y-c)^2 = 4\xi\eta xy$, we see that $x = 0$ and $y = 0$ are tangents to the parabola and their chord of contact is the polar of the origin with respect to the circle. The focus is, of course, the point where this polar crosses $\xi y = \eta x$.—Proposer.]

17779. (E. G. Hogg, M.A.)—If along the internal bisector of the angle A of the triangle ABC lengths AS, AH be cut off equal to AB and AC respectively, and if an ellipse be described with foci S and H to touch AB and AC, then the major axis of the ellipse is equal to BC.

Solution by James Blaikie, M.A., *and* W. N. Bailey.

Let H′ be the reflection of H in AC.

Then SH′ is the length of the major axis of the ellipse with foci S and H which touches AB and AC, and from the congruent triangles ABC, ASH′ it is evident that SH′ = BC.

QUESTIONS FOR SOLUTION.

17784. (S. Brodetsky, M.A.)—A_1, A_2, ... A_n, P are any points in space, and λ_1, λ_2, ... λ_n are any numbers. G_λ is the centre of mass of particles, masses λ_1, λ_2, ... λ_n at A_1, A_2, ... A_n respectively. Show that

$$\sum_{r=1}^{n} \lambda_r(PA_r)^2 = \left(\sum_{r=1}^{n}\lambda_r\right)PG_\lambda^2+\frac{1}{\sum_{r=1}^{n}\lambda_r}\sum_{\substack{r=1\\s=1}}^{\substack{r=n\\s=n}}\lambda_r\lambda_sA_rA_s^2.$$

This gives another physical meaning to the radius of gyration about the centre of mass or a line or plane through it.

17785. (W. F. Beard, M.A.)—ABC is a triangle. A parabola touches BC, CA, AB at x, y, z respectively. Prove that the tangents parallel to By, Cz intersect on the median through A.

17786. (C. H. Hardingham, M.A.)—If

$$f(x) \equiv (1-x)^2(1+x^2+x^4+x^6+\ldots),$$

graph on the same axes

$$(x+3)^2 = y^2 f(y), \quad 4y^2 = f(x), \quad (x-3)^2 = (1-y^2) f(y).$$

Draw these graphs also if

$$f(x) \equiv (1-x)\{1+x+x^2(1+x)+x^4(1+x)+\ldots\}.$$

17787. (Professor J. C. Swaminarayan, M.A.)—Find the locus of the intersection of tangents drawn from two fixed points $(g, 0)$, $(g', 0)$ to the family of circles $x^2+y^2-c = 2\lambda y$, λ being the variable parameter.

17788. (Professor Cochez.)—Etant données deux droites Ox, Oy, une circonférence assujettie à passer par O a son centre M variable sur Ox. Trouver le lieu du point de contact de la circonférence tangente à la circonférence M et aux droites Ox, Oy.

17789. (H. R. Wales.)—Prove that, if $x > \frac{1}{2}$, then

$$1/(1+x+x^2) < \tan 1/(1+x^2) < 1/(1-x+x^2).$$

17790. (C. E. Youngman, M.A.)—From a point T three tangents and three normals can be drawn to a tricusp: the condition for their feet to be six points on a conic is that T be concyclic with the three cusps, or in line with two of them. In the first case the conic is two parallel straight lines, one a normal to the tricusp and the other a tangent. In the second case the conic goes through the third cusp and the centre.

17791. (C. M. Ross, M.A.)—OC, OD are conjugate semi-diameters of an ellipse. Find the locus of the orthocentre of the triangle OCD.

17792. (R. Vythynathaswamy.)—A family of limaçons,

$$a_r + 2b_r \cos(\theta - \alpha_r) = \rho,$$

is drawn touching two fixed circles through the pole, and points are taken on their axes distant a_r^2/b_r from the pole. Show that these points lie on one or other of two circles.

17793. (S. Krishnaswami Aiyangar, B.A.)—A parabola has its axis perpendicular to the axis of x, and has contact of the highest order possible with the curve $a^{n-1}y = x^n$. Find the locus of its focus.

17794. (W. N. Bailey.)—A triangle is self-conjugate with respect to an ellipse. Show that the distance of the vertices from either axis is a constant multiple of the distance of the orthocentre from the same axis.

17795. (V. V. Satyanarayan.)—ABC is a triangle of given perimeter. If the vertex A is fixed and BC of constant length, find the locus of B when C describes (i) a straight line, and (ii) a conic.

17796. (Saradakanta Ganguly, M.A.)—A given ellipse slides between two straight lines, while one of the foci moves along a third straight line. Find the loci of the other focus and the centre.

17797. (Professor Nanson, M.A.)—If the conic $S = 0$ breaks up into two straight lines, find the area of the triangle formed by these lines and the line $lx+my+n = 0$.

17798. (C. V. L. Lycett.)—If m is a prime of the form $4n+3$, prove that either $\frac{1}{2}(m-1)!+1$ or $\frac{1}{2}(m-1)!-1$ is divisible by m. Is it possible to discriminate between these alternatives?

17799. (J. Hammond, M.A.)—If $P(n)$ is the number of the odd primes $(1, 3, \ldots, p)$ from 1 to n, and $q, r, \ldots$ are the primes between n and $2n$, prove that

$$P(2n-1)+P(2n-3)+\ldots+P(2n-p) = \{P(n)\}^2 + P(2n-q) + P(2n-r) + \ldots.$$

17800. (Lt.-Col. Allan Cunningham, R.E.)—If

$$N = r^r - (-1)^r(r+2),$$

show that $N \equiv 0 \bmod (r+1)^3$, if r be even, and $2N \equiv 0 \bmod (r+1)^3$, if r be odd. Ex.—Take $r = 10$ in Case 1, and $r = 9$ in Case 2, and factorize N completely.

17801. (H. D. Drury, M.A.)—Examine and comment on the following construction for the approximate trisection of a given angle by straight rule and compass. Let BCF be the given angle. Take any point B in BC, bisect BC in O, and draw OF perpendicular to BC. Through B draw BD cutting the perpendicular in Q and CF in D. Then, if DQ = DC, CQ is the actual trisector of the angle. If DQ is not equal to DC, but only very nearly equal, mark off along DB a length DP equal to DC; bisect BP in G and join GC. Through P draw a line parallel to GC meeting the perpendicular OF in A. Then will CA trisect the angle BCF very approximately. (Corresponding constructions hold for the division of an angle into any number of equal parts such as 5, 7, 11, &c.)

17802. (E. G. Hogg, M.A.)—A circle S touches a circle ABC, and tangents AP, BQ, CR are drawn to S. Show that

$$BC \cdot AP \pm CA \cdot BQ \pm AB \cdot CR = 0.$$

Deduce Ptolemy's Theorem.

17803. (T. Muir, LL.D.)—Show that the Pfaffian

$$\begin{vmatrix} a & -b & c & d & e \\ & -c & b & e & -d \\ & & a & -f & g \\ & & & g & f \\ & & & & a \end{vmatrix}$$

and the sum of the squares of its principal minors have a common factor.

17804. (Professor Neuberg).—On porte sur les médianes GA, GB, GC du triangle ABC les longueurs $AA_1 = BB_1 = CC_1 = \lambda$. Trouver l'enveloppe de l'axe d'homologie des triangles ABC et $A_1B_1C_1$ lorsque λ varie.

17805. (W. F. Beard, M.A.)—From any point T on a fixed straight line tangents TP, TQ are drawn to a parabola, meeting a fixed tangent at Y, Z. Prove that the locus of the intersection of PZ, QY is a conic.

17806. (R. F. Davis, M.A.)—D is the mid-point of the base BC of a triangle ABC, and I is the in-centre. DQ, perpendicular to AI, meets the perpendicular from A to BC in Q. Prove that the perpendicular from Q to DI passes through the point of contact of the in-circle with BC.

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The list of successful candidates at the Colonial Centres will be published in the October number of "The Educational Times."

[*Throughout the following Lists, bracketing of names implies equality.*]

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2. Kelly, C. (*Pinches Prize.*) — St. Joseph's College, Dumfries.
3. Nicholson, W. (*Hodgson Prize.*) — St. Joseph's College, Dumfries.
4. Darrah, N. — Mt. Radford School, Exeter.

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2. Clift, Miss F. H. L. — The Hiatt Ladies' College, Wellington.

Mathematics.

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2. Jones, W. J. — Private tuition.

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2. Dotto, J. L. — Christian Brothers' College, Gibraltar.

Classics.

1. Bannister, T. — Hawkesyard College, Rugeley.
2. [Not awarded.]

Natural Sciences.

[Not awarded.]

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3. Fidler, W. J. H. — Grammar School, Thorne.
4. Langrish, A. B. — Portsmouth Boys' Secondary School.

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2. O'Connor, H. L. — Salesian School, Farnborough.
3. Malzer, A. — St. Aloysius' College, Highgate.
4. Pim, Miss F. D. — The Friends' School, Mountmellick.

The following is a list of the Candidates who obtained the FIRST and SECOND PLACES in each Subject on SENIOR PAPERS. (Only those who obtained Distinction are included.)

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1. Moore, Miss A. S. F. — The Friends' School, Mountmellick.
2. Clift, Miss F. H. L. — The Hiatt Ladies' College, Wellington.
2. Glanville, W. V. — Private tuition.

English Language.

1. Clift, Miss F. H. L. — The Hiatt Ladies' College, Wellington.
2. Kelly, C. — St. Joseph's College, Dumfries.

English History.

1. Bowen, Miss D. M. — Private tuition.
2. Gard, Miss E. L. — Private tuition.

Geography.

1. Darrah, N. — Mt. Radford School, Exeter.
2. Tice, S. W. — St. Aloysius' College, Highgate.

Arithmetic.

1. Dukes, A. — Yorkshire Society's School, S.E.
2. Proom, F. E. — Argyle House School, Sunderland.
2. Stephens, W. J. — Cyfarthfa Castle Municipal Secondary School for Boys, Merthyr Tydfil.

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2. Mann, P. — Imperial Service College, Windsor.

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Mechanics.

1. Mann, P. — Imperial Service College, Windsor.

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1. Sagarra, J. — St. Aloysius' College, Highgate.
2. Tice, S. W. — St. Aloysius' College, Highgate.

Mensuration.

1. Isola, A. R. — Christian Brothers' College, Gibraltar.
2. Crundall, W. F. — Tudor Hall, Hawkhurst
2. Stephens, W. J. — Cyfarthfa Castle Municipal Secondary School for Boys, Merthyr Tydfil.

French.

1. Sagarra, J. — St. Aloysius' College, Highgate.
2. Kelly, C. — St. Joseph's College, Dumfries.
2. Marriott, A. E. — Grammar School, Eccles.
2. Pye, S. — St. Joseph's College, Dumfries.
2. Vaughan-Russell, J. F. R. — Private tuition.

German.

1. Whyte, Miss M. — The Ballymena Academy.

Italian.

1. Vaughan-Russell, J. F. R. — Private tuition.

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2. Hughes, Miss A. — Private tuition.

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2. Gillman, A. — Hawkesyard College, Rugeley.

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Chemistry.

1. Jones, Miss E. A. — Tutorial School, New Quay, Cardigan.
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1. Gardner, Miss H. M. E. — Merchant Taylors Girls' S., Gt. Crosby, Liverpool.

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1. Whitehead, F. — Royal Technical Institute, Salford.
1. Wright, T. — Friends' School, Wigton.

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b. = Botany.
bk. = Book-keeping.
ch. = Chemistry.
d. = Drawing.
do. = Domestic Economy.
du. = Dutch.
e. = English.
f. = French.
g. = Geography.
ge. = German.
geo. = Geology.
gm. = Geometry.
gr. = Greek.
h. = History.
he. = Hebrew.
i. = Italian.
ir. = Irish.
l. = Latin.
lt. = Light and Heat.
m. = Mechanics.
ma. = Magnetism & Electricity.
ms. = Mensuration.
mu. = Music.
p. = Political Economy.
ph. = Physiology.
phys. = Elementary Physics.
s. = Scripture.
sc. = Elementary Science.
sh. = Shorthand.
sp. = Spanish.
ta. = Tamil
t. = Trigonometry.
w. = Welsh.
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Ellis, L.E. Mt. Radford S., Exeter

Danson, W. *a.* County Secondary S., Eccles
Lynch, W. Salesian S., Farnborough

Cornwell, F.G. *a.f.* Private tuition
Herra, R.G. *bk.* St. Aloysius' Coll., Highgate
O'Flyn, J.L.C. Private tuition

Norton, F.J. Christian Bros.' Coll., Gibraltar
March, R. *a.al.f.* Gram. S., Bristol

Owen, W.R. Osborne High S., W. Hartlepool
Wilson, J.P. St. Joseph's Coll., Dumfries

Johnson, E.C. *f.* Tonbridge School
Richardson, C.A. *a.* St. Joseph's Acad., Kennington Rd., S.E.
Wells, J. *a.al.* St. Joseph's Acad., Kennington Rd., S.E.

Brocklehurst, J. Hawkesyard Coll., Rugeley
Pilling, N.P. Wilmslow College

Clark, F.E. Private tuition
Truscott, W.W.H. *f.* Devonport High S.
Twydell, L.H. *a.f.ch.* Central High S., Woodhouse Lane, Leeds

Barnes, W.E. *h.* University Coll. S., Hampstead
Blanchonnet, P. *bk.f.d.* St. Michael's Coll., Hitchin
Cheal, J.W.E. Manor H., Havant
LeMarquand, H.S. *h.* Private tuition

JUNIOR.

Pass Division.

Hirst, E.S. *lt.* Private tuition
Spalton, D.E. Yorkshire Society's S., S.E.

Cuckney, H.D. University S., Rochester
Evans, D.H. Gram. S., Pencader
Posso, H. Christian Bros.' Coll., Gibraltar

*Bouck, H.E. *bk.* Gram. S., Shoreham-by-Sea
*O'Connor, H. St. Joseph's Acad., Kennington Rd., S.E.

Buckley, H.L. Private tuition
Thorburn, J. *e.* Friends' S., Wigton

Bold, J.H.W. Gram. S., Eccles

Hoffmann, S. Upper Standard S., Pontypridd
McLauchlan, W.H. *bk.* St. Joseph's Coll., Dumfries
Simmons, L.J. St. Aloysius' Coll., Highgate
Jones, W.J. *w.* Gram. S., Pencader
Wilson, L.T. Richmond Hill S.

Dunsky, D. *a.f.ch.* Central High S., Woodhouse Lane, Leeds

Sutherland, W.A. Taunton School
Williams, E.L. Dunheved Coll., Launceston

Cordy, F.B. Eastward Ho! Coll., Felixstowe
Kiernan, J.J. St. Joseph's Coll., Dumfries
Revill, W. Hawkesyard Coll., Rugeley

Bream, H.N. *ma.* Alderman Newton's S., Leicester
Crosby, R.W. Western Coll., Harrogate
Innes, R. *d.* Municipal Secondary S., Bolton
Lishman, G.H. Argyle H., Sunderland
Marcionni, C.C.L. St. Aloysius' Coll., Highgate
Quinn, J.J. St. Joseph's Coll., Dumfries
Turner, H.P. *a.* Portsmouth Boys' Sec. S.
Watkins, G.P. *al.* Private tuition

Clacher, H. St. Joseph's Coll., Dumfries
Dunn, E.V. *gm.* Dunheved Coll., Launceston
James, D.E. Tutorial S., New Quay, Cardigan
Wayman, V.V. *bk.* Argyle H., Sunderland

Cope, M. Private tuition
Jaques, H.M. St. Aloysius' Coll., Highgate
Mackay Ross, J.A. *a.* Private tuition

Owen, R.J. *al.f.* Newcastle Modern S., Newcastle-upon-T.
Tristram, W.J. Central High S., Woodhouse Lane, Leeds

Halliday, A.H.B. Newtown S., Waterford
Jackson, H. *d.* West Bridgford Higher S., Nottingham
Mair, J.G. Newcastle Modern S., Newcastle-upon-T.
Pearson, T. *a.* Private tuition
Roberts, W.S. *al.* Private tuition

Friend, A.B. Taunton H., Brighton
Griffith, H.B. *d.* Private tuition
Holdsworth, J.P. *d.* Tudor Hall, Hawkhurst
Huggard, K. *d.* Newtown S., Waterford
Mills, P.H. *a.al.ch.* Private tuition
Walton, F.E. Private tuition

Hargreaves, T.H.J. Gram. S., Newton Abbot
Loustalan, V.J. St. Aloysius' Coll., Highgate
Smortitt, W.H. Ashville Coll., Harrogate
Wright, E.J. *a.al.gm.ms.* Private tuition

Bodenham, S.W. The College, Weston-super-Mare
*Carder, H.F. London Coll., Holloway
Entwisle, H. Gram. S., Eccles
Olarra, E. *f.* St. Joseph's Coll., Dumfries
Packman, G.I. University S., Rochester
Rose, H.E. Gram. S., Bristol
Senior, W.G. Private tuition
Thompson, B.O'N. Yorkshire Society's S., S.E.

Aonso, A.J. Christian Bros.' Coll., Gibraltar
Kemp, J. *h.* University S., Southport

Cooper, G.T. *e.* Mt. Radford S., Exeter
*Facio, E.B. *sp.* Christian Bros.' Coll., Gibraltar
Hodgson, M.R. *a.f.* Private tuition
Matthews, W.B. Dunheved Coll., Launceston
*Paul, J.S.G.F. Gram. S., Ongar
Rodrigues, J.J. *f.* St. Joseph's Coll., Dumfries
Surr, T.B. Municipal Secondary S., Bolton

Fisher, A.N. Private tuition
Mead, K.V. *f.* Taunton School
Walton, R. Gram. S., Eccles

Gowlett, W.R. Gram. S., Ongar
Jeiter, F.J. St. Joseph's Coll., Dumfries
*Restano, J. Christian Bros.' Coll., Gibraltar

Collins, J.L. Friends' S., Wigton
Stanley, D.H. Boys' S., Chadsmoor, Cannock
Widdows, F.M. *h.* Private tuition

Greenland, B. Gram. S., Thorne
Kelly, M. St. Joseph's Coll., Dumfries
Kirk, D.A. St. Joseph's Coll., Dumfries
Lewis, F.C. Dunheved Coll., Launceston
Storey, J. *a.al.* St. Joseph's Coll., Dumfries
Thomas, C.E. Higher Grade S., Mountain Ash

Bayly, W. Shebbear Coll., Highampton
Cooper, J.W. Maesteg Sec. S.
O'Neill, J.J. St. Joseph's Coll., Dumfries
Tussaud, G.P. St. Aloysius' Coll., Highgate

Laws, E.R. *h.* Balham Modern S.
Maleham, H. *al.* Gram. S., Thorne
Rands, S.H. Wisbech Gram. S.

Lachiondo, P. *d.* St. Joseph's Coll., Dumfries
Pringle, C. St. Joseph's Acad., Kennington Rd., S.E.

Bennett, J.V.P. Higher Grade S., Blackpool
Fieldgate, G.H. *h.* University S., Rochester
George, W.F. Gram. S., Chorlton-cum-Hardy
Green, W.S. Alderman Newton's S., Leicester
Harding, V.L.W. *a.* The College, Weston-s.-Mare

Brockway, F. Salesian S., Farnborough
Brownrigg, A. Salesian S., Farnborough
Cole, G.T. Taunton School
Cruz, C.J. Christian Bros.' Coll., Gibraltar
Glanville, A.V. Portsmouth Boys' Sec. S.
*Holt, O.D. *d.* Private tuition
Lewis, W.T. Upper Standard S., Pontypridd
Llewellyn, E.J. Upper Standard S., Pontypridd
Newtou, F.H. *ma.* Longwood Gram. S., Huddersfield
Peckover, H.D. *h.* Holland H., Hove
Smith, A.H. The Modern S., Gravesend

Cottam, H.F. Private tuition
Cox, J.G. Private tuition

Grosvenor, V.L. Taunton School
Tarrant, S. St. John's Coll., Brixton
*Theophilus, D.B. Cyfarthfa Castle Municipal Sec. S., Merthyr Tydfil

*Budden, A.C. Dunheved Coll., Launceston
Mitchell, H.L.A. Upper Standard S., Pontypridd
Owen, G.V. St. Mary's Hall, Cardiff
Porteous, R.F. Taunton School
Turner, G.S. St. Joseph's Coll., Dumfries

Giolitto, M. St. Joseph's Acad., Kennington Rd., S.E.
Henry, R. Argyle H., Sunderland
*Higgins, M.J. Private tuition
Keene, J.W.C. University S., Southport
Pastfield, J.V. *f.* The Cathedral S., Exeter

Brearley, F. Grace Ramsden's End. Gram. S., Elland
Curry, W.A. Argyle H., Sunderland
Davies, D.P. Tutorial S., New Quay, Cardigan
Hitchcock, C.G. *d.* Stafford Coll., Forest Hill
Horsley, G.W. Private tuition
Lewis, W.S. Higher Grade S., Mountain Ash
Murray-Shirreff, G. *f.* Private tuition
Nicklin, R. Private tuition
Sunderland, M.G. *f.* Private tuition
Tidcomb, G. Fairfield Sec. S., Montpellier, Bristol

Chapman, H.E. *a.* Private tuition
Dale, P.A. Argyle H., Sunderland
Hunt, G.R. *a.* Private tuition
Jones, T.E. Gram. S., Pencader
Pearless, J. Dudley H., Lee
Summers, M.H. Private tuition
Taylor, C.F. Richmond Hill S.
Williams, W.J. Private tuition

Buchan, R.W. Private tuition
Gedge, E.G. St. Aloysius' Coll., Highgate
Grant, D. Victoria S. of Languages, Mount Pleasant, Liverpool
Hillier, E.E. Taunton School
Ivens, H.D. St. Aloysius' Coll., Highgate

*Bartley, W.R. Private tuition
Chettleburgh, M.W. *h.* Taunton School
Hall, C. Salesian S., Farnborough
Noad, C.K. *f.* Private tuition

Evans, W.B. *w.* Gram. S., Pencader
Howes, H. Private tuition
Kennard, R.G. Taunton School
Thwaites, J.W. St. John's Coll., Brixton

Casson, H.W. Private tuition
*Haughton, F.L. Dunheved Coll., Launceston
*Lewis, T. *a.* Private tuition
McAllister, F. St. Joseph's Coll., Dumfries
Morcom, P.D. Dunheved Coll., Launceston
Myersen, M.J. *a.ms.* Private tuition
Taylor, S.R. Southport College

Barnard, A.G. St. Aloysius' Coll., Highgate
Everett, C. Balham Modern S.
*Gobey, L.F. Private tuition
Newman, F.H. *a.* Private tuition
Oakley, G.E. *a.* Private tuition
Pain, G.S. *d.* Sevenoaks School
Smithies, C.M. Private tuition
Stephenson, C.E.R. High Pavement Sec. S., Nottingham

Ford, N.S. Merchant Taylors S., E.C.
Harper, S.W. Private tuition
Moore, J.J. Park S., Wood Green
Roberts, T.D.E. St. Mary's Hall, Cardiff
Rose, C.V.D. *f.* Felsted School
Standish, C. Private tuition
*Whitehead, F. *d.* Royal Technical Inst., Salford
Wilson, S.W. Private tuition

Bennett, T.L. *sh.* Higher Grade S., Blackpool
Cohen, J. *f.* Private tuition
Coward, V. Victoria Gram. S., Ulverston
Williamson, M. Clark's Preparatory Branch, Uxbridge Rd., Ealing

Davan, C.W. *a.* Dudley H., Lee
Firth, G.F. *a.* Private tuition
Fox, C.J.B. *f.* Newcastle Modern S., Newcastle-upon-T.
*Gribbell, S.R.G. Private tuition
Prior, J.A. St. Joseph's Coll., Dumfries
*Shuttleworth, A.C. *d.* Royal Technical Inst., Salford
Spedding, C.P. *a.* Private tuition
Tran, R.A. Taunton School
Vincent, T.C.L. Private tuition

Blackburn, H. Private tuition

Payne, R.W. The College, Weston-super-Mare
Robson, R.T. *a.al.* Private tuition

Bullard, J.G. *al.* Private tuition
Burke, A.J. Hawkesyard Coll., Rugeley
Jacob, J.G. Newtown S., Waterford
Jennings, A.J. Gram. S., Ongar
*Slocombe, R.C. Dunheved Coll., Launceston
Walker, J. *d.* Private tuition
Williams, S. Upper Standard S., Pontypridd
Worthington, A. *a.al.* Hyde Gram. S.

Blackledge, J. Salesian S., Battersea
Davis, G.J. Tudor Hall, Hawkhurst
Edwards, H. *a.* Private tuition
Evans, H.W.A. Private tuition
Hall, J.W. Private tuition
Kershaw, H.S. Gram. S., Eccles
Owens, T.D.C. Taunton School
Sherman, D.MacL. Taunton School
Terndrup, L. St. Joseph's Coll., Dumfries

Blakey, W.C. *h.* Ightham Rectory
Lewis, D. Gram. S., Llanybyther
Massey, G.W. *h.* Clark's Preparatory Branch, Uxbridge Rd., Ealing
Plaskett, H.J. Private tuition
Robins, K.T. Taunton H., Brighton
Ryper, G.H. Taunton School
Teixeira, A.C. St. Joseph's Coll., Dumfries
*Watson, E. Private tuition

Hall, T.C. Taplow Gram. S.
Timings, L.J. Private tuition
Tynan, S.P. *f.* The High S., Broadstairs

Findlay, W. Private tuition
Gregson, J.D. Southport College
Nogueira, F.A. St. Joseph's Coll., Dumfries
Nutt, R.E. *a.* Boys' High S., Tettenhall Rd., Wolverhampton
Poole, W.H. *e.* Newtown S., Waterford
Sibson, R.D. Osborne High S., W. Hartlepool

Fuller, F.F. University S., Southport
Greensted, R.E. Private tuition
Young, J.W. *ms.* Gram. S., Thorne

Blain, I. Private tuition
Peirce, A.R. Richmond Hill S.
Smith, E.M. *f.* Taunton School
Tunnicliffe, E.C. Private tuition

Adams, R. Taunton School
Parsonage, R.P. Whitchurch Gram. S.
Walmsley, J. St. Joseph's Coll., Dumfries
Wrate, R.H. Portsmouth Boys' Sec. S.

Dudeney, R.L. Taunton H., Brighton
Eaves, W.J. St. Joseph's Coll., Dumfries
Lee, P.M. Private tuition
Lowe, C. Taplow Gram. S.
Lumley, E. Private tuition
Noller, A. Private tuition
*Reepmaker, J.C. *f.* Private tuition
Skinner, A. *a.d.* Private tuition
Solomons, A.J. *a.* Private tuition
Walters, G.C. Dunheved Coll., Launceston
Wootton, N.J. *f.* Private tuition

Andrew, P.C. Gram. S., Bridlington
Ellison, S. Private tuition
Firth, N.V. Private tuition
Harvey, C.B. Yorkshire Society's S., S.E.
Johnson, C.W. *a.* Kelvin Coll., Liverpool
Robinson, P. Friends' S., Wigton
Whitaker, A.G. Private tuition
Würfel, R. Salesian S., Battersea

Cowen, W. *f.* Private tuition
Davies, A. Private tuition
*Davies, B. Cyfarthfa Castle Municipal Sec. S., Merthyr Tydfil
*Morgan, D.H. Cyfarthfa Castle Municipal Sec. S., Merthyr Tydfil
Tarry, W.E. Allenby H., Derby
Walker, P.E. The High S., Broadstairs

Briscoe, C.W.H. Private tuition
Gould, S.H. The High S., Broadstairs
Hopkins, C.A. *a.* Lancaster Coll., W. Norwood
Stone, V.O. Taunton School

Evans, D.K. Private tuition
Hales, H.E. Private tuition
Lewis, R. Private tuition
Randall, C.O. Streatham Modern Coll.

Cooke, N.T. Private tuition
Crowther, H. *a.f.* Private tuition
Gardner, P.L. Stafford Coll., Forest Hill
Phillips, J.F.M. Ferndale Secondary S., Glamorgan
Randall-Stevens, H.C. Private tuition
Wadsworth, W. Grace Ramsden's End. Gram. S., Elland

BOYS, JUNIOR, PASS—*Continued.*

Besley, A.P. — Taunton School
Couch, K.G. — Brynmelyn S., Weston-super-Mare
Doxey, J.H. — Private tuition
Gough, J.J. — Private tuition
O'Brien, D. — St. Joseph's Coll., Dumfries
Shanks, G.B. — Private tuition
Tucker, L.M. — Sidcup Hall Coll.
Urquhart, A.J. — Argyle H., Sunderland

Herries, N. *a.al.* — Gram. S., Chorlton-cum-Hardy
Lloyd, G.A. — Private tuition
Rampling, E.H. — Private tuition
Wells, E.R. — Kensington Coaching Coll., Nevern Sq., S.W.

Andrews, E.F. — Southend-on-Sea Gram. S.
Davies, E.D.T. — Tutorial S., New Quay, Cardigan
Densham, H. — Private tuition
Farrow, H.C. — University S., Rochester
Lound, J.D. — Private tuition
Morris, D.J. — Old College S., Carmarthen
Parry-Jones, H. — Private tuition
Robinson, J.G.K. — Taunton School

Brocklehurst, A.C. — Private tuition
Corner, A.G.M. — Vermont H., Downs Park Rd., N.E.
Davies, T.G.L. — Private tuition
Keys, S. — Private tuition
Marsh, W.K. *a.* — Victoria S. of Languages, Mount Pleasant, Liverpool
Preston, J.F. — Private tuition
Scudamore, C.G. — Taplow Gram. S.
*Stephens, T.L. — Private tuition
Walton, C. — Gram. S., Eccles

Anderson, C.S. *h.* — Taunton School
*Bhunsiri, S. — Private tuition
Champion, B. — Scorton Gram. S.
Lacamp, A.L. — Archbishop Holgate's S., York
Trace, L.A. — Taunton H., Brighton

*Connell, C.M. — Gram. S., Ougar
Cooper, A.C. — Private tuition
Douthwaite, S.M. — Eastward Ho! Coll., Felixstowe
Fairfax, R.W. — Private tuition
Hodgson, J.A. — Private tuition
Lesser, L. — Private tuition
Pratten, P.R. — Private tuition
Summers, J.D.C. *d.* — Stafford Coll., Forest Hill
Thomas, R. — Gram. S., Llanybyther
Wilkes, G.E. — Private tuition

Cull, C.R. — Buckingham Place Acad., Portsmouth
Curtis, J.F. — Taunton School
Gillman, J.H. — Boys' Coll. S., Aldershot
Harrison, G. — West Bridgford Higher S., Nottingham
James, W.H. — Private tuition
Lancaster, M.P. — Waterlooville Coll.
Stephenson, H. — Scarboro' Gram. S.
Watts, V.H. — University S., Rochester

Allen, H.R. — Private tuition
Bartlett, E.P. — Private tuition
Hodgson, J. — Friends' S., Wigton
*Hopkins, R.W. — University S., Rochester

Arnold, A.G.S. — Private tuition
Peel, G.S. — Grace Ramsden's End. Gram. S., Elland
Shannon, A.D. — Taunton School

Chazan, M. — Private tuition
Frossard, H.L. — Private tuition
Hair, W. — Newtown S., Waterford
Harrison, F.H. — St. John's Coll., Brixton
Scott, R.C. — Private tuition
Tipper, R.E. — St. Joseph's Coll., Dumfries

Brown, J. — Private tuition
Tew, T.H.W. — Gram. S., Cannock
*Thomas, T.R. — Old College S., Carmarthen

Furness, H.L. — Private tuition
Matthews, L.W. — Private tuition
Matthews, P. — Mt. Radford S., Exeter
Pires, A. — Salesian S., Battersea
*Storer, G.P. — Private tuition

Armstrong, W. — Private tuition
Calwell, H.E. — Private tuition
Horsfall, J.W. — Grace Ramsden's End. Gram. S., Elland
Hutton, A.F. — St. Aloysius' Coll., Highgate
Jones, T.E.M. *h.* — St. Mary's Hall, Cardiff
*Webber, A.R. — Dunheved Coll., Launceston

Campbell, J.C. — Private tuition
Hoffman, A. — Private tuition
Jacob, G. — Gram. S., Pencader
Lodge, G.J. — Taunton School
Meacham, P.F.J. — Private tuition
Smith, F J. — Private tuition
*Williams, R.T. — Private tuition

Bramhill, T.W. — Humberstone Foundation S., Old Clee, Grimsby
Enoch, J.R. *w.* — Gram. S., Pencader
Ghalib, S. — The Gram. S., Faversham
Halkier, J. — Private tuition
Hayward, R.F.J. — Private tuition
Howson, C.M.E. — Taunton School

Bridger, F.L. — Private tuition
Davies, B.E. — Private tuition
Enoch, S A. — The College, Weston-s.-Mare
Heselton, F.S. — Osborne High S., W. Hartlepool
King, T.S. *d.* — Private tuition
White, K.C. — Newtown S., Waterford

Chasseaud, W.F. — Private tuition
McGartland, W. — St. Joseph's Coll., Dumfries
Thomas, T.B. — Tauuton School

Berrington-Stoner, C.S.T. — Private tuition
Brown, F.R. — Humberstone Foundation S., Old Clee, Grimsby
Darwent, F. — Private tuition
*Downing, D.B. — Southport College
Jamieson, C.F. — Private tuition
Powell, J.H. — Private tuition
Sharp, R. — Private tuition
Ward, G.W. — Clark's Preparatory Branch, Uxbridge Rd., Ealing

Atherton, J. — St. Joseph's Coll., Dumfries
Carter, T.L.C. — Taunton School
Haws, L. — Fartown Gram. S. Huddersfield
Jackson, H.S. *a.* — Private tuition
McRobbie, J. — Private tuition
Morris, C.R. — Private tuition
Wattie, J. — Private tuition

Barnes, E.C. — Private tuition
Davies, D. — Old College S., Carmarthen
Dawson, J.M. — Edgbaston Acad., Birmingham
Lea, W.H. — Taunton School
Shaw, F.L. — West Bridgford Higher S., Nottingham
Smith, H.R. — Stafford Coll., Forest Hill

Diacono, A.D. — St. Joseph's Coll., Dumfries
Hall, G.S. — Taunton School
Hames, C.W. — West Bridgford Higher S., Nottingham
Hitchcock, F.S. — Private tuition
O'Donovan, M. — Private tuition
Wrigley, A. — Coll. S., Colwyn Bay

Carter, F.J. — Private tuition
*French, R. — Private tuition
Oxenberry, L. — Private tuition

Appleyard, G.W. — Southport College
Davies, H.R. — Old College S., Carmarthen
Grice, J.B.G. — Dunstable School
Harrison-Brindley, W. — Private tuition
Heard, W. — Private tuition
Hill, R.C. — Mt. Radford S., Exeter
Rhodes, G.L. — Gram. S., Chorlton-cum-Hardy
Wilford, F. — Taunton School
Williams, C.E. — Private tuition

Avon, L.G. — The High S., Broadstairs
Bissett, L.R. — Stafford Coll., Forest Hill
Pullen, G.F. — Taunton School
Siddiqui, B.A. — Manor H., Clapham
Starkey, H.W. — Private tuition
Ward, G.W.L. — Private tuition
Wheatley, L.J. — Private tuition

Ackers, R. — Private tuition
Billings, H.W. — Portland Coll., Chiswick
Crothall, A.G. — Tudor Hall, Hawkhurst
Kaye, J. — Grace Ramsden's End. Gram. S., Elland
Pilbrow, S.E. — Private tuition
Roberts, R.G. — Private tuition
*Waldron, L.W. — Newtown S., Waterford

Kennedy, H.P. — Private tuition
Lewis, B.T. — Private tuition
Taylor, A.C. — Private tuition
Sapsford, S.J. — Kirkmanshulme Gram. S., Longsight, Manchester

Brignall, L.E. — Balham Modern S.
Hubball, H. — Private tuition
Spencer, H. — Accrington Academy
Wyatt, H. — Dunheved Coll., Launceston

Girling, L.J. — Eastward Ho! Coll., Felixstowe
Jeffries, G.M. — Clark's Preparatory Branch, Uxbridge Rd., Ealing
Jones, N.M. — Rocklyn, Rockleaze, Bristol

Waugh, A. — Private tuition

Clark, P.J. — Portland Coll., Chiswick
Kamel, M.M. — Private tuition

Greenhalgh, E.P. — Private tuition
Newton, A. — Parkfield S., Westcliff-on-Sea
Perkins, E.G.H. — Private tuition

Heather, W.F. — Newtown S., Waterford
Turley, J. — Private tuition
Cabe, C. — Private tuition
Davies, L. — Taunton School
Roach, S.L. — Taunton School
Bate, E.G. — Private tuition

PRELIMINARY.

Honours Division.

Arambarri, J. *a.al.f.d.* — St. Aloysius' Coll., Highgate

Charpentier, H. *al.bk.ms.f.* — Marist Bros.' Coll., Grove Ferry
Suso, P. *s.al.bk.f.* — Marist Bros.' Coll., Grove Ferry

Weeger, R. *al.bk.* — Marist Bros.' Coll., Grove Ferry
Higgius, M.P. *a.al.l.* — Salesian S., Farnborough
O'Connor, H.L. *h.a.al.l.* — Salesian S., Farnborough
Dunlop, I.W. *a.al.gm.f.* — Salesian S., Farnborough
Vasilesco, G.E. *a.* — St. Aloysius' Coll., Highgate

Cousin, C. *a.al.bk.f.d.* — Marist Bros.' Coll., Grove Ferry
Malzer, A. *a.al.* — St. Aloysius' Coll., Highgate
Tynan, C. *al.gm.l.* — Salesian S., Farnborough

Deshayes, J. *a.f.* — St. Aloysius' Coll., Highgate
Vincent, R. *a.al.bk.f.* — Marist Bros.' Coll., Grove Ferry

Almond, H.N. *a.al.gm.* — Salesian S., Farnborough
Triay, S.P. *s.e.a.al.sp.* — Christian Bros.' Coll., Gibraltar

Franklin, J. *al.f.* — Salesian S., Farnborough
Hussey, M. *al.l.* — Salesian S., Farnborough
Grosstephan, F.C.G. *a.al.* — St. Aloysius' Coll., Highgate
Withall, J.A. *a.al.* — St. Aloysius' Coll., Highgate

Caldana, E. *bk.f.* — Marist Bros.' Coll., Grove Ferry
Grond, M.P. *f.* — Private tuition

Molloy, M.A. — Salesian S., Farnborough
Walton, T.B. *al.* — Salesian S., Farnborough

Duncan, A.G. *e.a.al.* — Cranbrook Park S., Ilford
Reddy, S.A. *f.* — Salesian S., Farnborough
Sullivan, G.W. *al.* — University S., Rochester

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Martin, W.M. *a.f.* — St. Joseph's Coll., Dumfries

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Challinor, A.B. *a.al.* — St. Joseph's Coll., Dumfries
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†Verrall, C.E.V. Private tuition

Bax, J.W. Gram. S., Chorlton-cum-Hardy
Hainsworth, W.G. Gram. S., Bentham
Leggott, S.G. *a.* Scorton Gram. S.
McVey, A.E. St. Joseph's Coll., Dumfries
Nicole, H.R. Gram. S., Ongar
Patching, S.W. Ion H., East Molesey
Rogers, C.W. St. John's Coll., Brixton

Beveridge, L.J. St. Joseph's Coll., Dumfries
Carlton, F.A. Dudley H., Lee
Diacono, O. St. Joseph's Coll., Dumfries
Hawen, F.S. St. Aloysius Coll., Highgate
Stone, E.R.P. Balham Modern S.
†Whitby, H.A.M. Eastward Ho! Coll., Felixstowe

Bowen, T. Old College S., Carmarthen
Christian, A. Salesian Oratory S., Wandsworth Common
†Hutchinson, L. West Bridgford Higher S., Nottingham
Julian, J.R. *d.* Taunton School
Powley, O. Argyle H., Sunderland

†Booth, F.K. Taunton School
Bradnum, L.W. Taunton School
Bromfield, R.C. *a.* Westminster Coll. of Chemistry, Clapham Road, S.W.
Cuthbert, W.B. Ilford Coll., Seven Kings
†Davies, R.T. Old College S., Carmarthen
Hind, F.W. Ilford Coll., Seven Kings
Jones, G.G. Hawkesyard Coll., Rugeley
†Netherway, S.M. Kauterskill, St. Nicholas, nr. Birchington
Somers, W.S. Taunton School

Carey, R. Salesian Oratory S., Wandsworth Common
Clutten, G.F. Eastward Ho! Coll., Felixstowe
Knight, R.F. St. John's Coll., Brixton
Read, J.F. Taunton School
†Ross, L.P. Bethany H., Goudhurst
Stokes, A.T. Stafford Coll., Forest Hill

Barnes, C.C. The Modern S., Streatham Common
Defferary, E. Christian Brothers' Coll., Gibraltar
Jones, G.W. St. John's Coll., Brixton
Sheridan, T.A. Salesian S., Farnborough
Steggall, V.A. Scorton Gram. S.
Thompson, R.B. Osborne High S., W. Hartlepool
Workman, L.A.H. The Modern S., Streatham Common

Davies, J.D. Gram. S., Eccles
Furneaux, W. *al.* Taunton School
†Hair, J. Newtown S., Waterford
Hankinson, J.T. Taunton School
Iles, R.F. Newtown S., Waterford
Robinson, D.G. Taplow Gram. S.
Spear, C.F. Eastward Ho! Coll., Felixstowe

†Aspinall, F. Ashland High S., Wigan
†Davies, L.T.E. Old College S., Carmarthen
Hiddleston, J. St. Joseph's Coll., Dumfries
Joyce, L.A. The High S., Broadstairs
Walker, S.W. Taunton School
Warren, W. Eastward Ho! Coll., Felixstowe

Nessom, J. Scorton Gram. S.
Permain, G.E. Taunton School

Porter, W.J. Eastward Ho! Coll., Felixstowe
Rawkins, M.D. Ilford Coll., Seven Kings
†Salathiel, T. Bournebrook S., Birmingham

Levy, L.C. St. John's Coll., Brixton
Magee, G. St. Joseph's Coll., Dumfries
Mayston, R. Salesian Oratory S., Wandsworth Common
Palmer, J. Clark's Preparatory Branch, Uxbridge Rd., Ealing

Challen, J.G. Gram. S., Eccles

Addis, E. St. Joseph's Coll., Dumfries
Davies, D.L. Gram. S., Pencader
Horner, L. University S., Southport
Jordan, A.E. Boys' High S., Erdington
Tomkinson, C.F. Bethany H., Goudhurst
Whittaker, C.H. University S., Southport

Farrington, W.D. Hill Croft High S., Stamford Hill
†Harris, S.A. Newtown S., Waterford
Knight, A.F. St. John's Coll., Brixton
Pallister, W.T.N. Gram. S., Ongar

†Searle, J.I. Hyde Gram. S.
Theobald, I.St.J. Taunton School

Weatherstone, N. Bethany H., Goudhurst

Hancock, C.H. Stafford Coll., Forest Hill
Mann, G.E. The Modern S., Streatham Common

Rourke, J. Hawkesyard Coll., Rugeley
Stuart, R.S. Taunton School

Farris, C.D. Dudley H., Lee

CLASS LIST—GIRLS.

For list of Abbreviations, see page 392.

SENIOR.

Honours Division.

Clift, F.H.L. *s.e.h.a.al.gm.* The Hiatt Ladies' Coll., Wellington
Spence, E.M. *a.f.d.* The Ballymena Acad.
O'Mahony, A. *sh.do.* St. Mary's Conv., Bruff

SENIOR.

Pass Division.

Clarke, M.M. *s.e.* The Hiatt Ladies' Coll., Wellington
Davies, H. *s.h.w.* Private tuition
Gard, E.L. *h.a.f.* Private tuition
Jones, E.D. *s.a.al.* Tutorial S., New Quay, Cardigan
Jones, M.E. *w.* Cyfarthfa Castle S., Merthyr Tydfil
Pickering, E.S. *s.* Friends' S., Wigton
O'Beirne, L. *s.* St. Mary's Conv., Bruff
Gardner, H.M.E. *s.f.ph.* Merchant Taylors' Girls' S., Gt. Crosby, Liverpool
Fudger, M.E. *a.* Newtown S., Waterford
Whyte, M. *f.ge.* The Ballymena Acad.
Moore, A.S.F. *s.d.* The Friends' S., Mountmellick
Jones, E.G. *f.* Tutorial S., New Quay, Cardigan
Barry, M. St. Mary's Conv., Bruff
Bowers, K.J. Newtown S., Waterford
Gregory, K. Old College S., Carmarthen
Thomas, M.G. *s.* Pengwern Coll., Cheltenham
Davies, G. *e.* Cyfarthfa Castle S., Merthyr Tydfil
Jones, A. High S., Twickenham Green
Brennan, M.J. St. Joseph's S., Lincoln

Lewis, H.D. Tutorial S., New Quay, Cardigan
Johnson, H.I. *s.* Friends' S., Wigton
Jones, L. *e.w.d.* Cyfarthfa Castle S., Mertha Tydfil
Hirst, D. *s.d.* St. Hilda's S., Horbury, Wakefield
Armstrong, L.G.L. Pengwern Coll., Cheltenham
Hughes, A. *w.* Private tuition
Bowen, D.M. *s.h.* Private tuition
Cresswell, E. *h.* Private tuition
Goode, A. Cyfarthfa Castle S., Merthyr Tydfil
Atkins, D.A. *d.* Private tuition
Pryce, E.A. Cyfarthfa Castle S., Merthyr Tydfil
Tuohy, B.A. *f.* St. Joseph's S., Lincoln
Davison, D.D. *s.f.* The Ballymena Acad.
Williams, B. *a.* Cyfarthfa Castle S., Merthyr Tydfil
McNamara, H.M. St. Joseph's S., Lincoln
Simpson, A.M. The Ballymena Acad.
O'Donnell, M. St. Mary's Conv., Bruff
Farrington, A. High S., Sidney Place, Cork
Rees, E.E.G. Tutorial S., New Quay, Cardigan
Harrison, G.E. Private tuition
Holloway, F.R. *s.* Private tuition
Smith, A.G.A. Private tuition
Henderson, A.L. *do.* Friends' S., Wigton
McDowell, M.S. *s.* Private tuition
Slattery, A.M. St. Joseph's S., Lincoln
Gwynne, M.S. Cyfarthfa Castle S., Merthyr Tydfil
Lewis, A. Cyfarthfa Castle S., Merthyr Tydfil
Williams, E.M. Private tuition

O'Brien, M.A. St. Joseph's S., Lincoln
Jones, C. Private tuition
Breen, M. St. Mary's Conv., Bruff
Phillips, E.E. Tutorial S., New Quay, Cardigan
Rees, G. Cyfarthfa Castle S., Merthyr Tydfil
Rowe, B.M. Private tuition
Minogue, M.V. St. Joseph's S., Lincoln
Low, E.M. Private tuition
Webb, F.M. Private tuition
Goodwin, E. Cavendish S., Matlock Bank, Matlock
Jones, A. *a.* Cyfarthfa Castle S., Merthyr Tydfil
Watkins, E.M. Private tuition
Humphreys, P. Cyfarthfa Castle S., Merthyr Tydfil
Jonquet, T.G. *f.* Private tuition
Morgan, E. Private tuition
Quinlivan, N.F. St. Joseph's S., Lincoln
Thomas, B. Tutorial S., New Quay, Cardigan
Allen, J.M. The Hiatt Ladies' Coll., Wellington
Byrne, W.M. St. Joseph's S., Lincoln
Whitney, A. *d.* Cyfarthfa Castle S., Merthyr Tydfil
Moloney, A.M. St. Joseph's S., Lincoln
Game, P.M. University S., Rochester
Ashton, G. Cyfarthfa Castle S., Merthyr Tydfil
Morgan, D. Private tuition
Owen, E.E. Norton Lodge, Small Heath
Beynon, E.M. *w.* Private tuition
Headford, G.M. Private tuition
Edwards, M. Cyfarthfa Castle S., Merthyr Tydfil
Haywood, M. Private tuition

Avery, F.M. Private tuition
Oeppen, E. Cyfarthfa Castle S., Merthyr Tydfil
Williams, N.P. Cyfarthfa Castle S., Merthyr Tydfil
Edwards, E. Cyfarthfa Castle S., Merthyr Tydfil
Thomas, H. Cyfarthfa Castle S., Merthyr Tydfil
Morgan, M. Private tuition
Davies, M. Cyfarthfa Castle S., Merthyr Tydfil
Leeper, D. Private tuition
Lowman, I.L.G. Private tuition
Bowden, O. Private tuition
Nicholas, M. Private tuition
Williams, B. Private tuition
Lewis, M. Gram. S., Pencader
Harris, K. Cyfarthfa Castle S., Merthyr Tydfil
Jones, L.M. Cyfarthfa Castle S., Merthyr Tydfil

JUNIOR.

Honours Division.

Fayle, L.M.R. *e.* The Friends' S., Mountmellick
O'Byrne, H.C. *h.gm.bk.* Dominican Conv., Wicklow
O'Shea, K. *s.h. a.f.* St. Mary's Conv., Bruff
Hancock, L.I. *g.* The Friends' S., Mountmellick
Ennis, L.M. *f.d.* Dominican Conv., Wicklow
Silke, M.R. *s.f.* Dominican Conv., Wicklow

GIRLS, JUNIOR, HONOURS—*Continued.*

Baker, S.M. *h.* The Friends' S., Mountmellick

Aherne, N. *e.f.* St. Mary's Conv. S., Buttevant
Bond, H.G. *b.d.* Long Eaton County Sec. S.

Barker, K. *a.* The Hiatt Ladies' Coll., Wellington
O'Dwyer, M. *e.* St. Mary's Conv., Bruff
Hilliard, J.R. *e.* The Friends' S., Mountmellick
Kinsey, E.M. The Hiatt Ladies' Coll., Wellington
Dutton, H.M. The Hiatt Ladies' Coll., Wellington
Morton, E. *f.* Private tuition

Drabble, M. *ph.* Cavendish S., Matlock Bank, Matlock
O'Connell, R. *h.f.* St. Mary's Conv. S., Buttevant
Townend, M. *d.* Belle Vue Girls' Sec. S., Bradford
Minogue, M.K. *a.* St. Joseph's S., Lincoln

JUNIOR.

Pass Division.

*Franks, Y. *s.* Private tuition
Maloney, B.A. St. Joseph's S., Lincoln
O'Connor, J. St. Mary's Conv. S., Charleville
Whelan, A. *bk.* St. Mary's School, Glasnevin
Heyne, B.M. The Hiatt Ladies' Coll., Wellington
O'Regan, B. St. Mary's Conv., Bruff

Heaton, M. *h.ge.* Private tuition
Rodenhurst, J.M. The Hiatt Ladies' Coll., Wellington

Legg, D.M. Middle Class S., Stoke Rd., Gosport
Robinson, D. Friends' S., Wigton

Gaze, E. *e.* Upper Standard S., Pontypridd
*Harris, W. Cyfarthfa Castle S., Merthyr Tydfil
O'Neill, N. St. Mary's Conv., Bruff
Patron, M. Loreto Conv., Europa, Gibraltar

Barradell, C.K. Eye Gram. S.
Clarke, G.M. Clark's High S., Holloway
Curtin, C. St. Mary's Conv., Bruff
Dixon, M. *e.* Friends' S., Wigton
*Edwards, B. Private tuition
Field, F. *gm.* Belle Vue Girls' Sec. S., Bradford
*O'Kennedy, A. St. Mary's Conv., Bruff

Drummond, D. *d.* Friends' S., Wigton
Venables, M.K. Peugwern Coll., Cheltenham
Brock, D.M. *d.* The Limes, Buckhurst Hill
*Jones, E. Private tuition

Maguire, M. St. Mary's Conv. S., Charleville
O'Brien, M.V. St. Joseph's S., Lincoln
O'Shea, K. St. Mary's Conv., Bruff
Stephenson, M. Dominican Conv., Wicklow
Williams, M. Central S., Carnarvon

Matthews, H.G. *d.* Canton Municipal Sec. S., Cardiff
O'Donovan, K. *h.* St. Mary's Conv., Bruff
McAuliffe, C. St. Mary's Conv., Bruff

Coulthard, A.J. Beaconsfield, Weston-s.-Mare
*Roberts, B. Cyfarthfa Castle S., Merthyr Tydfil
Tyler, N. *f.* Loreto Conv., Europa, Gibraltar

Breen, L. St. Mary's Conv., Bruff
Doherty, F.J. *e.f.* St. Mary's Dominican Conv., Kingstown
McAuliffe, L. St. Mary's Conv. S., Charleville

Davies, V.M. High S., Cowbridge
Kiely, M. St. Mary's Conv. S., Charleville

Van Thal, J.H. *f.* Minerva Coll., Dover
O'Brien, K. St. Mary's Conv., Bruff
Castrillo, A. *d.* Loreto Conv., Europa, Gibraltar

McDermott, M. Dominican Conv., Wicklow
Walshe, E. St. Mary's Boarding S., Glasnevin
*Edwards, M. Old College S., Carmarthen

Fountain, M.D. Southend-on-Sea Gram. S.
*Thomas, R.J. Private tuition
Wrigley, K. Private tuition

Duel, V. Minerva Coll., Dover
Gates, D.M. University S., Rochester

Jackson, M. *e.* Friends' S., Wigton
*Jenkins, M.A.G. Cyfarthfa Castle S., Merthyr Tydfil
Jones, M. *a.* Chadsmoor Girls' S.
Serniclay, G. *f.ph.* Annecy Conv., Seaford

*Goodrum, M.E. Private tuition
Joseph, D.F. Preswylfa High S., Cardiff
Moroney, A. St. Mary's Conv., Bruff
Nelson, M.J. St. Mary's, Haddington Rd., Dublin

Boyles, L.E. Upper Standard S., Pontypridd
*Jones, E.A. *ch.* Tutorial S., New Quay, Cardigan
Morgan, N.E. The Hiatt Ladies' Coll., Wellington

O'Donnell, M. St. Mary's Dominican Conv., Kingstown
Richardson, M. Conv. of the Holy Faith, St. Dominick St., Dublin

Norman, C. Upper Staudard S., Pontypridd

Day, D.M. Eye Gram. S.
Abbott, L. Central S., Carnarvon
*Butler, H.B. Private tuition
*Jones, R. St. Mary's Conv., Bruff
McAvoy, A. Knock Inter. S. & Kindergarten
Palacci, L. *f.i.* Minerva Coll., Dover
Williams, R. Upper Standard S., Pontypridd

Deakin, D.K. The Hiatt Ladies' Coll., Wellington
Roy, J.G. Private tuition

Painton, O.E. Private tuition

*Davies, M.E. Private tuition
Ditchburn, M. Private tuition
Letellier, M. *f.* Annecy Conv., Seaford
Tyson, M. *e.* Municipal Sec. S., Barrow-in-Furness

Kealy, D. Conv. of the Holy Faith, St. Dominick St., Dublin

Anderson, E. St. Mary's, Haddington Rd., Dublin
Jacobs, N.E. Private tuition
Leonard, V.F. The Friends' S., Mountmellick
Purcell, A. St. Mary's Conv., Bruff
*Thomas, S.A. Cyfarthfa Castle S., Merthyr Tydfil
Tunnicliffe, E.F. *f.* Private tuition
*Williams, D.M. Private tuition

Brooks, F.M. High S., Sidney Place, Cork
Cooper, H. Loreto Conv., Europa, Gibraltar
Lacey, H. *ir.* St. Mary's Conv., Bruff
*Owen, E. Cyfarthfa Castle S., Merthyr Tydfil
*Roberts, L.A. Old College S., Carmarthen

*Lindsay, N. St. Mary's Conv., Bruff
Milliken, H.J. Victoria Coll., Belfast

*Fletcher, M. Royal Tech. Inst., Salford
James, G.M. Upper Standard S., Pontypridd

*Baile, E. Private tuition
Bell, E.M. *do.* Friends' S., Wigton
*Davies, A.M. Private tuition
*Davies, M.E. Private tuition
Williams, J. Central S., Carnarvon

Agutter, K. Loreto Conv., Europa, Gibraltar
Duff, R. St. Mary's School, Glasnevin
*Edwards, E.A. Tutorial S., New Quay, Cardigan
Edwards, M. Pengwern Coll., Cheltenham
O'Brien, B. St. Mary's Conv., Bruff
Stiles, M.F. St. Margarets, Southerndown

Hanchett, M. Private tuition
*Williams, J. *w.* Private tuition

Coleman, B. St. Mary's Conv. S., Buttevant
*Dews, P.C. St. Hilda's S., Horbury, Wakefield
Jones, G.S. Upper Standard S., Pontypridd
*Lewis, G. Cyfarthfa Castle S., Merthyr Tydfil
McCormack, J. St. Mary's Conv., Bruff
Williams, E. Cyfarthfa Castle S., Merthyr Tydfil

*Phillips, E. Private tuition

Dowling, D.M. St. Winifride's S., Wimbledon
Hill, D.E. Fartown Gram. S., Huddersfield
Martin, M. Private tuition

*Mansell, J. Cyfarthfa Castle S., Merthyr Tydfil
*McSweeney, M.A. Private tuition
Scott, I.J. North London Coll. S., Sandall Rd., N.W.
*Tiplady, E.A. Private tuition

Kerfoot Roberts, L.M. St. Clare's Conv. Sec. S.

Davies, A.V. *e.* St. Margarets, Southerndown
Wake, E. Entry H., Diss

Blackstock, A.F. Victoria Coll., Belfast
*Currie, J.McM. Cambridge H., Ballymena
*Rees, M.A. Private tuition
Thomas, H.M. Gram. S., Pencader
Walsh, B. St. Mary's Dominican Conv., Kingstown

Wood, L.C. The Hiatt Ladies' Coll., Wellington

Brierley, O. St. Mary's Boarding S., Glasnevin
Hamilton, M. Newtown S., Waterford
*Morgan, G. Private tuition
Raison, A.M. Higher Grade S., Mountain Ash, Glamorgan

Gilsenan, A. St. Mary's Dominican Conv., Kingstown
Gilsenan, A.J. *al.* St. Mary's Dominican Conv., Kingstown
Mills, D. Brent Hill S., Hanwell

Dowlen, L.V. Clark's High S., Holloway
Simpson, E. Private tuition

Berry, D.J. Broughton & Crumpsall High S., Higher Broughton
Bevan, H.F. Private tuition
Connolly, M. St. Clare's Conv. Sec. S.
Griffith, Edith Central S., Carnarvon
Kelly, T.A. St. Clare's Conv. Sec. S.
*Nolan, C. St. Mary's Conv., Bruff
Smith, D.B. 9 Castleton Terrace, Belfast

*Ashton, C. Private tuition

Hughes, E.M. Central S., Carnarvon
Hulme, F.K. Convent High S., Cannock
Suter, K. University H., Rochester

Hoade, J.M. St. Anne's Conv., Camp Hill, Birmingham
*Jones, M. Private tuition
Kihlmeyer, M.B.A. St. Helen's, Blackheath

*Denty, R. Private tuition
Ellis, E.C. Southend-on-Sea Gram. S.
Pursey, G.A. Southoe H., Richmond
*Richards, G. Cyfarthfa Castle S., Merthyr Tydfil

*Webster, R. Private tuition

Kemp, L.M. Private tuition
*Lewis, M. Private tuition
Taylor, G.M. Upper Standard S., Pontypridd

Drake, W. Burwood Coll., East Sheen

Flint, D. Private tuition
*Harper, D.W. Old College S., Carmarthen
Sullivan, C.E. Upper Standard S., Pontypridd
Wood, J.M. Private tuition

Ancliffe, L. Private tuition
*Baxter, E. Private tuition
Fleming, L. St. Mary's Conv., Bruff
Matthews, M. Upper Standard S., Pontypridd
*Suthers, E.M. Private tuition

Williams, D. *f.* Conv. of O.L. of Compassion, Acocks Green, Birmingham

Heffernan, A. St. Mary's Dominican Conv., Kingstown

Brook, L. Grace Ramsden's Endowed Gram. S., Elland
O'Grady, H.C. St. Joseph's S., Lincoln

O'Connor, D.M. St. Anne's Conv., Camp Hill, Birmingham
Satten, H.M. St. Anne's College, Sanderstead

Bona, E. Old College S., Carmarthen
O'Connor, M. St. Mary's Conv., Bruff

Griffiths, V. Higher Grade S., Mountain Ash, Glamorgan
Ryan, B.B. St. Mary's Dominican Conv., Kingstown

Southworth, L.H. Private tuition
Manbey, G.O. Southend-on-Sea Gram. S.

McManus, M. St. Mary's Dominican Conv., Kingstown

Taylor, E.J. Fairfield Sec. S., Montpelier, Bristol

Graydon, N.E. St. Clare's Conv. Sec. S.

PRELIMINARY.

Honours Division.

Swift, A.E. *s.h.g.d.* The Hiatt Ladies' Coll., Wellington
Pim, F.D. *e.h.g.a.al.* The Friends' S., Mountmellick
Hornstein, J. *f.ge.* Scotch Mission Girls' S., Galata, Constantinople
Mills, C.E.L. *a.f.* Pengwern Coll., Cheltenham

Canning, K. *a.al.d.* Dominican Conv., Wicklow
Jones, M. *e.w.* Central S., Caruavon

Harper, M.A. *al.* Convent High S., Cannock
Davies, E.C. *s.e.a.al.* Conv. of the Holy Faith, St. Dominick St., Dublin
Bridger, D. *e.g.a.al.* Loreto Conv., Europa, Gibraltar
Hamilton, H. *s.a.* The Friends' S., Mountmellick

Jones, L. *a.f.* Dominican Conv., Wicklow
Webb, F.M. *g.a.al.d.* Stapleton Hall S., N.

Lichtenberg, A. *a.al.* Crouch End High S. & Coll., Hornsey
Smyth, V.I.T. *g.al.* The Friends' S., Mountmellick

Potter, K.A. *a.* Conv. of the Holy Faith, St. Dominick St., Dublin

Bell, M.B. *e.f.* Victoria Coll., Belfast
Grainger, M.M. *a.* Dominican Conv., Wicklow
Hannon, F.M. *a.al.f.* Dominican Conv., Wicklow
McKenna, L. *a.al.* Dominican Conv., Wicklow

Gill, A.F. The Friends' S., Mountmellick
Sewell, E.G. *s.d.* Notre Dame High S., Clapham

Holloway, D.G. *g.a.al.* Conv. of the Holy Faith, St. Dominick Street, Dublin
Thomas, J. *a.al.w.* Gram. S., Pencader
McKenna, T. *al.d.* Dominican Conv., Wicklow
O'Reilly, M. *a.* Conv. of the Holy Faith, St. Dominick Street, Dublin

Detan, A.M. *f.* Meeching Place Conv., Newhaven
Doran, A. *f.* Dominican Conv., Wicklow
Smalldridge, E.M. *a.* The Friends' S., Mountmellick
Taylor, W.A. *g.al.* Private tuition

Casper, P.H. *e.a.* Middleton H., W. Hartlepool
Naylor, E. *g.al.* Private tuition
Richards, D.M. *e.a.al.* Conv. of the Holy Faith, St. Dominick Street, Dublin

Molloy, E. *e.a.* Conv. of the Holy Faith, St. Dominick Street, Dublin
Sacarello, R. Loreto Conv., Europa, Gibraltar

Cornwall, E.M. *s.g.d.* Private tuition
Lightfoot, M. *f.* Dominican Conv., Wicklow
Shipsides, K. *g.a.al.* Private tuition

Clitherow, D V. *h.* Girls' Gram. S., Levenshulme
Drabble, M.L. *s.e.* Cavendish S., Matlock Bank, Matlock
Hayes, E. *g.al.* St. Mary's Conv., Bruff
Holland, E.F. *s.d.* Lowther Coll., Lytham
O'Donnell, M. *a.d.* St. Mary's Conv. S., Charleville
Roche, M.A. *e.g.a.* St. Mary's S., Conv. of Mercy, New Ross

Hillier, M.A. *s.g.al.* Private tuition
Jones, A. *e.a.al.* Conv. of the Holy Faith, St. Dominick Street, Dublin
McLoughlin, W. Dominican Conv., Wicklow

GIRLS—*Continued.*

PRELIMINARY.

Pass Division.

†Bologna, M.T. *f.* Notre Dame de France, Leicester Sq., W.C.
†Healey, E. *h.* St. Mary's, Haddington Rd., Dublin
†Rees, E.A. Preswylfa High S.
†Davies, E.M. Upper Standard S., Pontypridd
Wilkinson, V.F. *s.e.a.al.* Notre Dame High S., Clapham
Rice, E.W. *g.* The Hiatt Ladies' Coll., Wellington

Delange, M.L. *f.* Meeching Place Conv., Newhaven
†Le Guennec, J. *f.* High S., St. Louis Conv., Frome
Powell, L. *al.* Dominican Conv., Wicklow
Roosen, M. *h.f.d.* Hainault High S., Ilford
Thirtle, R.A. Clark's Preparatory Branch, Uxbridge Rd., Ealing

Bergin, M. St. Dominic's High S., Santa Sabina, Sutton
Davis, D.J. *s.g.* The Hiatt Ladies' Coll., Wellington
Pendlebury, S. *g.d.* Lowther Coll., Lytham
Pim, L.B. *s.a.* The Friends' S., Mountmellick
Pond, P.E. Stapleton Hall S., N.
Whiteman, M.E. University S., Rochester
Williams, K. *a.al.* Private tuition

†Dollard, M.J. St Mary's Dominican Conv., Kingstown
MacKenzie, A.A. *e.* Notre Dame High S., Clapham
O'Donnell, M. *a.* St. Mary's Conv. S., Charleville

Vinson, G.I. *a.* University S., Rochester

Byrne, M. *a.bk.* Holy Faith Conv., Clarendon St., Dublin
Davis, G.N. Finsbury Park High S.
Pivot, E.M. *f.d.* Meeching Place Conv., Newhaven

Loddé, M. *f.* Granville Coll., Southampton
†Meeke, M. Conv. of the Holy Faith, St. Dominick Street, Dublin

Howell, B. *e.a.* Upper Standard S., Pontypridd
John, R.H. *e.a.al.d.* Upper Standard S., Pontypridd
Keogh, G. St. Mary's School, Glasnevin
Lucas, H. *a.al.* Loreto Conv., Europa, Gibraltar
Lyons, K. Convent High S., Cannock
Thomas, A. *h.a.* Private tuition

†Bowden, E. St. Mary's Dominican Conv., Kingstown
†Northey, E.A. Victoria Coll., Belfast
†Pritchard, N. Central S., Carnarvon
Wilkinson, M.B. *bk.* St. Mary's Boarding S., Glasnevin

Gantley, B. *e.g.* St. Mary's S., Conv. of Mercy, New Ross
†Kirkby, D.M.A. *e.* St. Margarets, Southerndown

Banks, E.W. *s.* Wincham Hall, Lostock Gralam
Bergin, N. St. Dominic's High S., Santa Sabina, Sutton
Colfer, E. *a.* St. Mary's S., Conv. of Mercy, New Ross
Freedman, M.E. *f.* Minerva Coll., Dover
Gouk, D. Victoria Coll., Belfast
Soar, E.A. St. Bernards, Tulse Hill
Tinline, M. Lowther Coll., Lytham

Griffith, Eleanor *e.* Central S., Carnarvon
Jones, E.M. Central S., Carnarvon
Marsden, L.E. Preswylfa High S.
Mordecai, E.M. *a.* Upper Standard S., Pontypridd
Sylvester, C.A. St. Bernards, Tulse Hill

Davies, V.M. *e.al.* Upper Standard S., Pontypridd
Fleming, T. *a.* St. Mary's Conv. S., Charleville
Hawkins, A. *al.* Upper Staudard S., Pontypridd
McGrath, I. St. Mary's Day S., Clontarf
Musgrave, F.I. High S., Sidney Place, Cork
†Pike, E.L. Private tuition
†Shanley, M. Conv. of the Holy Faith, St. Dominick St., Dublin

Clowes, H.E. Private tuition
†Cranstone, C.R. Private tuition
†O'Connor, A. St. Mary's Conv., Bruff
Samsing, E.M. Middleton H., W. Hartlepool
Twiss, E.D. *d.* High S., Sidney Place, Cork

Beatty, A. Dominican Conv., Wicklow
Dick, K. Convent de la Mère de Dieu, Surbiton Hill
Huckstepp, M. Conv. of O. L. of Compassion, Acocks Green, Birmingham
O'Connell, M. *s.d.* St. Mary's Conv., Bruff
†Wilbraham, J.W. Minerva Coll., Dover

†Besley, E.M. Highfield, Wallington
Brady, N. St. Mary's School, Glasnevin
Bryant, D. *a.* Eye Gram. S.
Geddes, M.D. Stapleton Hall S., N.
Jones, R.M.C. *s.e.a.al.* Upper Standard S., Pontypridd
Palti, R. *f.* London Jews' Society Mission S., Constantinople
†Ryan, H.M. St. Joseph's S, Lincoln
†Sparks, M.C. Private tuition

Buckley, E. *bk.* St. Mary's School, Glasnevin
Luccock, A.F. Stapleton Hall S., N.
†Rees, M. Upper Standard S., Pontypridd
†Stone, F.M. West Bridgford Higher School I

Gibb, M.S. *s.* Middleton H., W. Hartlepoo
†Griffith, E.J. Private tuition
†Martin, H.M. Victoria Coll., Belfast
Sara, M.E. *s.* Frobisher Terrace S., Falmouth
†Williams, S.H. Private tuition

Addis, F.M. *al.* Upper Standard S., Pontypridd
Albutt, M.E. *g.* Osborne H., Redditch
O'Donnell, M. *d.* St. Mary's Conv. S., Charleville
Power, K. St. Mary's Dominican Conv., Kingstown
Tingley, I.M. *al.* University S., Rochester
†Williams, A.E. Chadsmoor Girls' S.

Baloud, M. *f.* Meeching Place Conv., Newhaven
Jackson, A. St. Mary's Day S., Clontarf
Matty, F.M. *s.* Lowther Coll., Lytham

Kelly, M. St. Mary's Conv., Bruff
Mills, E. Brent Hill S., Hanwell

Askew, D.A.L. Carlyle Coll., Brighton
Connor, L.K. *al.* Orrington H., Belfast
Garty, M. *a.d.* St. Mary's Conv. S., Charleville
Graham, B. St. Mary's Conv., Bruff
Richmond, C. H. Orrington H., Belfast
Templeman, N. St. Winefride's S., Wimbledon
Ternan, K. Annecy Conv., Seaford

Axford, E.K. Ashurst Coll., Balham

Gould, L. *e.a.al.* Upper Standard S., Pontypridd
Love, A.E. *d.* Wincham Hall, Lostock Gralam
†O'Byrne, M.E. St. Mary's Boarding S., Glasnevin
†Plaisant, G. *f.* High S., St. Louis Conv., Frome
Still, K.M. Elmcroft High S., Winchmore Hill
Tucker, M.C. *s.* Notre Dame High S., Clapham

Jones, L.W. *w.* Central S., Carnarvon
Scally, M. *a.* St. Mary's Dominican Conv., Kingstown
Slater, M.M. Private tuition

Cunniam, L. *bk.* St. Mary's Boarding S., Glasnevin
Geary, M. *g.* St. Mary's Conv., Bruff
Hanna, W.A. Ladies' S., Newtownards
Hill, F.M. *a.* Fartown Gram. S., Huddersfield
Illing, E.G. Private tuition
Ingram, K.M. *a.* High S., Twickenham Green
O'Callaghan, N. *a.d.* St. Mary's Conv. S., Charleville
†Thompson, L.B. West Bridgford Higher School
Wicks, B.I. Eye Gram. S.

Carey, B. St. Mary's Conv., Bruff
Cleland, M. Oriel Coll. S., Larne
Fuld, D.A. Finsbury Park High S.
Hayes, K. St. Mary's Conv., Bruff
Mennie, M.L. Wincham Hall, Lostock Gralam
Perrineau, I. *f.* Annecy Conv., Seaford
Raynaud, C.A. St. Mary's Coll., Barnes

Attfield, M.M. St. Catherine's High S., Bow
Hammett, K.E. Moreton, Mannamead
Hammond, N.G. *g.a.* Eye Gram. S.
Nuttall, K.M. Lorrimore Coll., Sheffield
O'Brien, M. St. Mary's Conv. S., Charleville
Purdon, E.G. Newtown S., Waterford
Taylor, J. Brent Hill S., Hanwell
Thomas, H. *w.* Gram. S., Pencader
Thomas, M.M. *a.w* Gram. S., Pencader
Weightman, M.E. St. Mary's Coll., Barnes

Baldry, M. *a.* Eye Gram. S.
†Jefferies, E.L. Higher Grade S., Mountain Ash
Sheedy, M. St. Mary's Boarding S., Glasnevin

Barry, J. St. Mary's Conv., Bruff
Davis, A.M. 9 Castleton Terrace, Belfast
Gaffney, K. St. Mary's, Haddington Rd., Dublin
Haggett, B.F. *al.* Upper Standard S., Pontypridd
Wheatley, E. Conv. of the Holy Faith, St. Dominick St., Dublin

Clark, E.R. *c.* Newtown S., Waterford
†Downey, F. Newtown S., Waterford
Hornby, M.E. The Hiatt Ladies' Coll., Wellington

Hatte, A.L. Newtown S., Waterford
†Kennedy, A.M. Victoria Coll., Belfast
O'Donovan, M. St. Mary's Conv. S., Charleville
Price, A.M. Pengwern Coll., Cheltenham
Roberts, L.M. Central S., Carnarvon

Cullhane, J. *g.* St. Mary's Conv., Bruff
Duchon-Doris, A. Annecy Conv., Seaford
Field, H. Upper Standard S., Pontypridd
Joel, R. Finsbury Park High S.
Leber, M.R. *f.* Minerva Coll., Dover
Murphy, M.M. St. Mary's Day S., Clontarf

Bingham, M. *d.* Wincham Hall, Lostock Gralam
Carroll, K. St. Mary's Conv. S., Charleville
Hickie, M.A. St. Mary's Conv., Bruff
Lee, D. *e.* Loreto Conv., Europa, Gibraltar
Smith, R.A. Wincham Hall, Lostock Gralam

Asseo, L. London Jews' Society Mission S., Constantinople
Fanning, V. St. Mary's Day S., Clontarf
Hancock, M.F.C. Stapleton Hall S., N.
O'Brien, M.K. St. Mary's Dominican Conv., Cabra
Quirke, M.J. *a.* St. Mary's Dominican Conv., Kingstown
Ryan, E. *f.* St. Mary's Boarding S., Glasnevin

Cuming, A.C. Notre Dame High S., Clapham
Howard, M.M. Wincham Hall, Lostock Gralam
Perry, W.G. High S., Waltham Cross

Hynes, I.S. St. Dominic's High S., Santa Sabina, Sutton
†McDermott, K. Conv. of the Holy Faith, St. Dominick Street, Dublin
Priest, D.S. Conv. of St. Maur, Weybridge

Dunn, E.G. *f.* High S., St. Louis Conv., Frome
Fehr, E.L. Alresford S., Chislehurst
Lacombe, C. Convent S., Cadogan Street, Chelsea
†O'Regan, M. St. Mary's Conv., Bruff
†Stuart, E.M. St. Joseph's S., Lincoln

Disturnal, R.E. Lowther Coll., Lytham
Hembry, H.E. *d.* Orrington H., Belfast
Pearson, O.I. Beecholme Coll., Belper

Heath, C.V. Coronilla, Streatham
Jagger, E.W. The Hiatt Ladies' Coll., Wellington
Bourke, C. St. Mary's Conv., Bruff

Archer, E. St. Mary's Day S., Clontarf
Blake, J. St. Mary's Conv. S., Buttevant
Holling, A. Cavendish S., Matlock Bank, Matlock
Jones, H.A. *a.* Gram. S., Pencader
O'Brien, D. St. Mary's Conv., Bruff

Giblin, B. St. Mary's Dominican Conv., Kingstown
Sykes, M.M. Lowther Coll., Lytham

Freeman-Bullen, C.M. St. Catherine's High S., Bow
Spink, J.M. St. Joseph's S., Lincoln
Willmore, W.I. Carlyle Coll., Brighton

Collins, B.E. Victoria Coll., Belfast
Davies, B. Old College S., Carmarthen

Bailey, A.M. The College, Totnes

Chapman, R.O. Newtown S., Waterford
Wall, E. St. Mary's Conv., Bruff

Elder, L.M. Eldon Coll., Thornton Heath
Kennedy, M. St. Mary's Conv., Bruff
Pollock, M.M. Oriel Coll. S., Larne
Dunlea, M.C. St. Mary's Conv., Bruff

Hesketh, M.G. Wincham Hall, Lostock Gralam
Hill, K. St. Joseph's S., Lincoln

Clune, M.J. St. Mary's Dominican Conv., Kingstown
†Harris, E.M. Newtown S., Waterford

Moore, M. Conv. of the Holy Faith, St. Dominick St., Dublin
Nichols, V.E. Notre Dame High S., Clapham
Barron, C. Convent High S., Cannock

LOWER FORMS EXAMINATION.—PASS LIST, MIDSUMMER, 1914.

BOYS.

Abderhalden, R.C. St. Joseph's Coll., Norwood
Adams, C. St. Aloysius' Coll., Highgate
Adams, W.R. Taunton School
Allen, R.B. Scorton Gram. S.
Allison, C.R. Lindisfarne Coll., Westcliff-on-Sea
Amiotti, O. Notre Dame de France, Lisle St., W.C.
Anderson, J. St. Aloysius' Coll., Highgate
Angel, A. St. Aloysius' Coll., Highgate
Angel, W. St. Aloysius' Coll., Highgate
Anton, J.C. The Douglas S., Cheltenham
Armstrong, H.H. Argyle H., Sunderland
Aruold, G.H. Margate College
Arthur, J. St. Aloysius' Coll., Highgate
Ashley, L.W. Lindisfarne Coll., Westcliff-on-Sea
Ashton, R. The Conv., Pulteney Rd., Bath
Audibert, R. Notre Dame de France, Lisle St., W.C.
Austin, B. Salesian S., Battersea
Bach, J. St. Boniface's Coll., Plymouth
Badcock, J.C. Lindisfarne Coll., Westcliff-on-Sea
Baldwin, H. Entry H., Diss
Bale, L. Parkfield S., Westcliff-on-Sea
Balfe, G. Xaverian Coll., Mayfield
Banks, C.H. Lindisfarue Coll., Westcliff-on-Sea
Barnard, M.W. Cheltonia Coll., Streatham
Barnes, A.G. Southampton Boys' Coll. and High S., Portswood, Southampton
Bartlett, W.A. Streatham Gram. S.
Beale, R.H. Richmond Hill S., Richmond
Bell, W.L. Argyle H., Sunderland
Bennet, J. Salesian S., Battersea
Berg, I. Argyle H., Sunderland
Berni, H. Salesian S., Battersea
Bertoglio, E. Salesian S., Battersea
Besley, F.W. Taunton School
Best, P. Richmond Hill S., Richmond
Beükers, W.H. Streatham Gram. S.
Bindon, H.S. Streatham Gram. S.
Binns, J. St. Joseph's Coll., Norwood
Bishop, G.R. Lindisfarne Coll., Westcliff-on-Sea
Blackledge, T. The Catholic Gram.S., West Park, St. Helens
Blenz, L. St. Joseph's Acad., Kennington Rd., S.E.
Blumenthal, L. Lindisfarne Coll., Westcliff-on-Sea
Bobby, R. Entry H., Diss
Bowes, M. Salesian S., Farnborough
Bradford, J.F. Lindisfarne Coll., Westcliff-on-Sea
Bradshaw, J.H. Taunton School
Brame, G.R. Entry H., Diss
Brandford, F.T. Stafford Coll., Forest Hill
Braund, S. Taunton School
Bree, D. St. Aloysius' Coll., Highgate
Brimacombe, W.J. Taunton School
Bromell, B. Salesian S., Battersea
Brown, A. The Catholic Gram.S., West Park., St. Helens
Brown, D.H. Lindisfarne Coll., Westcliff-on-Sea
Brown, W.A. Lindisfarne Coll., Westcliff-ou-Sea
Brownfoot, A. St. Aloysius' Coll., Highgate
Bryan, A.M. Cavendish S., Matlock Bank, Matlock
Bryant, J.K. St. Aloysius' Coll., Highgate
Buckingham, W.E. The College, Weston-s.-Mare
Buckland, F. Streatham Gram. S.
Budd, F.L. Lindisfarne Coll., Westcliff-on-Sea
Bulger, W. St. Aloysius' Coll., Highgate
Bungay, E. Clark's Modern S., Forest Gate
Burke, J.T. The Catholic Gram.S., West Park, St. Helens
Burrell, H.G. St. George's S., Southampton
Bush, A.D. Lindisfarne Coll., Westcliff-on-Sea
Bush, L.C. Lindisfarne Coll., Westcliff-on-Sea
Butchard, J. The Catholic Gram.S., West Park, St. Helens
Butler Lloyd, W. Salesian S., Battersea
Butt, D. Taunton School
Butterfield, J.W. The Gram. S., Bentham
Caine, P. St. Aloysius' Coll., Highgate
Caraccio, L. St. Aloysius' Coll., Highgate
Carew, H. St. Aloysius' Coll., Highgate
Carmichael, J. Scorton Gram. S.
Caryesford, D. Salesiau S., Battersea
Castro, L. St. Aloysius' Coll., Highgate
Cattermole, C.E. Tudor Hall, Hawkhurst
Cazaly, G. Argyle H., Sunderland
Celler, J. Xaverian Coll., Mayfield
Chapman, P.A.E. High S., Twickenham Green
Chapman, S.de S. Lindisfarne Coll., Westcliff-on-Sea
Chapman, W.I. St. Dominic's High S., Santa Sabina, Sutton
Charles, V. St. Aloysius' Coll., Highgate
Chatfield, B.C. Margate College
Chevallier, L. Marist Bros.' Coll., Grove Ferry
Clancy, J. St. Joseph's Coll., Norwood
Clancy, J. Salesian S., Farnborough
Clancy, T. Salesian S., Battersea
Clark, A.H. Bethany H., Goudhurst
Clarke, J. Schools of the Sacred Heart, Skerries
Clatworthy, J.L.N. Taunton School
Clothier, F.H. St. Joseph's Coll., Norwood
Cocks, E.W.M. Lindisfarne Coll., Westcliff-on-Sea
Collins, C.A. The Catholic Gram.S., West Park, St. Helens
Comer, F.R. The College, Weston-s.-Mare
Connor, L. Xaverian Coll., Mayfield
Cook, E.G. New Coll., Herne Bay
Coombs, R.E. Upton Coll., Bexley Heath
Cooper, R.J. Southlands Gram. S., Littlestone-on-Sea
Cottis, P.F. Lindisfarne Coll., Westcliff-on-Sea
Court, J.E. St. Joseph's Coll., Norwood
Cox, C.W. Upton Coll., Bexley Heath
Crew, V. Bethany H., Goudhurst
Crosbie, R.G. Lindisfarne Coll., Westcliff-on-Sea
Crothall, C.C. Tudor Hall, Hawkhurst
Crowley, J. St. Aloysius' Coll., Highgate
Dahms, P. St. Aloysius' Coll., Highgate
Davey, C.F. Bethany H., Goudhurst
Davies, A.G. Taunton School
Davies, W. St. Aloysius' Coll., Highgate
Davis, E. Xaverian Coll., Brighton
Davy, A. Salesian S., Battersea
Dawson, A.H.B. Richmond Hill S., Richmond
Deacock, S. St. Aloysius' Coll., Highgate
Deal, A. Salesian S., Battersea
Dean, G.S. University S., Rochester
Dean, J.F. Balham Modern S.
Decker, H. St. Joseph's Acad., Kennington Rd., S.E.
de Kalmar, V.T. The Gram. S., Ongar
de Laubenque, B. Xaverian Coll., Brighton
de Mondésir, M. St. Boniface's Coll., Plymouth
De Rosa, J. St. Aloysius' Coll., Highgate
de Sousa, C. Xaverian Coll., Brighton
de T'Serclaes, J. Marist Bros. Coll., Grove Ferry
Dexter, L.J. Eastward Ho! Coll., Felixstowe
Dignam, J. Salesian S., Battersea
Dilley, B.V. New Coll., Herne Bay
Donnelly, J. Hawkesyard Coll., Rugeley
Down, J. Tankerton Coll., Whitstable
Dudney, C.H. Upton Coll., Bexley Heath
Duggan, J. Xaverian Coll., Mayfield
Dunnett, F. St. George's S., Southampton
Dunning, R. Salesian S., Battersea
Dutton, F. Xaverian Coll., Brighton
Ealet, V. Notre Dame de France, Lisle Street, W.C.
Ebberlen, J. Margate College
Eddon, J.B.E. Scorton Gram. S.
Edwards, C.A. Taunton School
Edwards, E.A.S. University S., Rochester
Edwards, R. Salesian Oratory S., Wandsworth Common
Eggemann, H., St. Aloysius' Coll., Highgate
Embleton, R.N. Scorton Gram. S.
England, C.C. The Gram. S., Ongar
Fagan, T.P. Preparatory Coll., Dominican Conv., Wicklow
Farrow, S.H. University S., Rochester
Fearne, C. St. Joseph's Acad., Kennington Rd., S.E.
Fearne, H. St. Joseph's Acad., Kennington Rd., S.E.
Feeney, T. Salesian S., Battersea
Feilmann, F., The Conv., Pulteney Rd., Bath
Fennessy, T. Xaverian Coll., Mayfield
Fidgen, H.W. Lindisfarne Coll., Westcliff-on-Sea
Figuiera, J. St. Aloysius' Coll., Highgate
Finlayson, G.P. St. Aloysius' Coll., Highgate
Fitton, J. The Gram. S., Bentham
Fitzgerald, C. St. Aloysius' Coll., Highgate
Flinn, W. Salesian S., Farnborough
Flood, T. Schools of the Sacred Heart, Skerries
Font, J. Xaverian Coll., Brighton
Fosbrooke, L.E.F. Margate College
Foster, A.V. Osborne High S., W. Hartlepool
Foster, C.F. Lindisfarne Coll., Westcliff-on-Sea
Fowler, G. Xaverian Coll., Mayfield
Frank, C. Xaverian Coll., Brighton
Freeliug, H. Salesian S., Battersea
French, A.G. Prep. Coll., Dominican Conv., Wicklow
Freuch, H. Salesian S., Battersea
Frodsham, L.E. The Catholic Gram. S., West Park, St. Helens
Frost, J.F.G. Lindisfarne Coll., Westcliff-on.Sea
Frova, D. St. Aloysius' Coll., Highgate
Fuller, R.H.C. Stafford Coll., Forest Hill
Garaicoa, F.D. St. George's S., Southampton
Geraerts, F. Salesian S., Battersea
Gibbons, W.W. Richmond Hill S., Richmond
Gibson, A. St. Boniface's Coll., Plymouth
Gleeson, H.O. Argyle H., Sunderland
Glenny, F.B. Lindisfarne Coll., Westcliff-ou-Sea
Glyun, T. The Catholic Gram.S., West Park, St. Helens
Goetghebeur, R. Marist Bros.' Coll., Grove Ferry
Golding, W. St. Aloysius' Coll., Highgate
Goodchild, S.J. St. Aloysins' Coll., Highgate
Gordon, T. The Conv., Pulteney Rd., Bath
Gorham, H.F. St. Aloysius' Coll., Highgate
Gosling, R.V. Tankerton Coll., Whitstable
Graddage, E.S. Margate College
Graham, S.M. University S., Rochester
Gray, G.F. St. Aloysius' Coll., Highgate
Greatorex, R. Xaverian Coll., Brighton
Green, C. Taplow Gram. S.
Green, J.A. Lindisfarne Coll., Westcliff-on-Sea
Greenwood, C. Salesian S., Battersea
Gregson, E.V. Taunton School
Greig, C. St. Aloysius' Coll., Highgate
Grosstephan, C. St. Aloysius' Coll., Highgate
Haimes, J. Salesian S., Battersea
Haines, C.A. Clark's Preparatory S., Uxbridge Rd., Ealing
Hales, E.M. New Coll., Herne Bay
Halladay, L.W. The Gram. S., Ongar
Hallett, — The College, Weston-super-Mare
Halliwell, H.W. Taunton School
Hamer, E.F. The Gram. S., Bentham
Handley, P.G. St. John's Coll., Southsea
Harrington, W. Xaverian Coll., Brighton
Harris, W. St. Aloysius' Coll., Highgate
Hartfield, F. Salesian Oratory S., Wandsworth Common
Harvey, A.D. Froebel H., Devonport
Haskins, C. The College, Weston-super-Mare
Hatley, B. St. Aloysius' Coll., Highgate
Hawkins, L.G. Taunton School
Hawkins, W.F. St. Aloysius' Coll., Highgate
Haydon, B.S. Margate College
Heathcote, P.L.W. Lindisfarne Coll., Westcliff-ou-Sea
Henderson, L. Salesian S., Farnborough
Henry, S.J. Southampton Boys' Coll. & High S., Portswood, Southampton
Henry, T. Southampton Boys' Coll. & High S., Portswood, Southampton
Henry, W.R. Southampton Boys' Coll. & High S., Portswood, Southampton
Hickling, F.C. Taunton School
Hill, A.R. Tothill S., Plymouth
Hitching, A.A. Cavendish S., Matlock Bank, Matlock
Hoeppner, K. Salesian S., Battersea
Hoffman, C. St. Aloysius' Coll., Highgate
Holding, D.S. Southend Gram. S.
Holland, J. Salesian Oratory S., Wandsworth Commou
Holling, W.C. Cavendish S., Matlock Bank, Matlock
Holmes, G. The Gram. S., Ongar
Holubowicz, C. Xaverian Coll., Mayfield
Honess, J.E. Bethany H., Goudhurst
Honess, W.T. Bethany H., Goudhurst
Howard, J.B. Streatham Gram. S.
Hunt, A.H. Stafford Coll., Forest Hill
Hunt, R. St. Aloysius' Coll., Highgate
Jackson, G. Beverley S., Barnes
Jameson, A. Argyle H., Sunderland
Jaques, R.E.H. The Gram. S., Ongar
Jeffries, J. Salesian S., Farnborough
Jemson, W. Conv. of the Compassion, Olton
Jephson, F.A. Cavendish S., Matlock Bank, Matlock
Johnson, G.M. Claremont H., Sunderland
Jones, C.P. Hawkesyard Coll., Rugeley
Jones, I. Osborne High S., W. Hartlepool
Jones, R.B. Prep. Coll., Domiuican Conv., Wicklow
Jones, S. St. Aloysius' Coll., Highgate
Joyce, J.V. Bethany H., Goudhurst
Kates, P.N. Clark's Preparatory S., Uxbridge Rd., Ealing
Kearle, V.C. The College, Weston-super-Mare
Keith, C.J. Heath Croft, Hampstead
Kemp, P.F. Lindisfarne Coll., Westcliff-on-Sea
Kendon, H.J. Bethany H., Goudhurst
Kerley, T. Salesian S., Battersea
Kerley, V. Salesian S., Battersea
Kidner, D.J. Taunton School
Kingston, H. Salesian S., Battersea
Kither, N. Upton Coll., Bexley Heath
Knight, R. St. John's Coll., Southsea
Lawson, R. Argyle H., Sunderland
Lea, J.H. Lindisfarne Coll., Westcliff-on-Sea
Lee Philpot, C. St. Joseph's Coll, Norwood
Le Fèvre, B. St. Aloysius' Coll., Highgate
Le Forestier, A.W.H.A. Dudley H., Lee
Legge, G.A.A.S. Taunton School
Lennon, N.F. The Catholic Gram.S., West Park, St. Helens
Le Roux, J. St. Bouiface's Coll., Plymouth
Lesconnec, F. St. Boniface's Coll., Plymouth
Leslie, B.S. Private tuition
Linton, C.W. The High S., Broadstairs
Littledale, G. The Conv., Pulteney Rd., Bath
Littlejohns, W. Salesian S., Battersea
Livermore, G.E. New Coll., Herne Bay
Lloyd, W.G. Tauuton School
Lockhart, J.D. Taunton School
Loufte, F. Marist Bros.' Coll., Grove Ferry
Loustalan, P. St. Aloysius' Coll., Highgate
Lovett, A.G. Heath Croft, Hampstead
Lovett, W.P.A. Heath Croft, Hampstead
Low, A. Xaverian Coll., Brighton
Low, T. Xaverian Coll., Brighton
Lucey, C. Salesian S., Battersea
Lynch, R. Xaverian Coll., Brighton
MacKay, D. Taplow Gram. S.
Mackintosh, C. Taplow Gram. S.
Mackintosh, E. Taplow Gram. S.
Mackintosh, J. Taplow Gram. S.
Madden, L.C. St. Joseph's Coll., Norwood
Maloney, T. Salesian S., Farnborough
Mann, C.A. Lindisfarne Coll., Westcliff-on-Sea
Mapson, F. Salesian S., Farnborough
Marguet, J. Xaverian Coll, Mayfield
Marsh, J. The Catholic Gram.S., West Park, St. Helens
Marshall, R.M. University S., Rochester
Martelli, C.R. Margate College
Martin, E.V. Balham Modern S.
Martin, H. St. Boniface's Coll., Plymouth
Mason, C.T.M Tankerton Coll., Whitstable
Mason, W.D. The Gram. S., Ongar
Maton, J. Xaverian Coll., Brighton
Matthews, C. St. Joseph's Acad., Kennington Rd., S.E.
Maudsley, R.M. The Gram S., Bentham
Maunder, P.H. The College, Weston-s.-Mare
McCabe, J. Salesian Oratory S., Wandsworth Common
McGowan, T. Schools of the Sacred Heart, Skerries
McLoughlin. J.L. Prep. Coll., Dominican Conv., Wicklow
McMullen, J. Salesian Oratory S., Wandsworth Common
Meddings, F. St. Aloysius' Coll., Highgate
Melluish, N.L. Lindisfarne Coll., Westcliff-on-Sea
Mercer, R.J. Green Park Coll., Bath
Merchant, A.G. Clark's Preparatory S., Uxbridge Rd., Ealing
Middlehurst, V. Hawkesyard Coll., Rugeley
Milburn, L. St. Aloysius' Coll., Highgate
Miller, A.D. Argyle H., Sunderland
Miller, E.F. Lancaster Coll., W. Norwood
Mills, R.V. Margate College
Milton, L.A. Tothill S., Plymouth
Minns, C.G. St. John's Coll., Southsea
Mitchell, W. St. Aloysius' Coll., Highgate

BOYS, LOWER FORMS—*Continued.*

Moglia, J.A. The Catholic Gram. S., West Park, St. Helens
Moore, J. St. Aloysius' Coll., Highgate
Morgan, H.M. The Douglas S., Cheltenham
Morris, G.R. Stafford Coll., Forest Hill
Morrison, H. Xaverian Coll., Mayfield
Mosey, F.N. Lindisfarne Coll., Westcliff-on-Sea
Mulcahy, J.A. Preparatory Coll., Dominican Conv., Wicklow
Mulvaney, H. Salesian S., Farnborough
Nash, G. St. Aloysius' Coll., Highgate
Neate, A. St. Aloysius' Coll., Highgate
Nelson, H.E. Clark's Modern S., Forest Gate
Nelson, L.D. Claremont H., Sunderland
Nesom, T. Scorton Gram. S.
Nevard, C. Salesian Oratory S., Wandsworth Common
Newbury, J.A. Lindisfarne Coll., Westcliff-on-Sea
Newth, T.C. Cheltonia Coll., Streatham
Norris, C. Xaverian Coll., Mayfield
Norris, E.C.W. St. George's S., Southampton
Northway, E. The Conv., Pulteney Rd., Bath
Nutter, C.H.P. Lindisfarne Coll., Westcliff-on-Sea
O'Callaghan, T. The Conv., Pultency Rd, Bath
O'Connor, P. Xaverian Coll., Mayfield
O'Driscoll, D.J. St. Joseph's Coll., Norwood
O'Dwyer, R. Salesian S., Battersea
Ogle, H.H. Argyle H., Sunderland
O'Hanlon, P. St. Aloysius' Coll., Highgate
O'Meara, J. Preparatory Coll., Dominican Conv., Wicklow
O'Meara, T. St. Aloysius' Coll., Highgate
O'Riordan, V. Schools of the Sacred Heart, Skerries
Osborn, L.H. The Gram. S., Ongar
Osborne, A.W. Lindisfarne Coll., Westcliff-on-Sea
Ost, V.C.S. New Coll., Herne Bay
O'Sullivan, F.L. St. George's S., Southampton
O'Sullivan, J. St. Aloysius' Coll., Highgate
Otway, R.W. Lindisfarne Coll., Westcliff-on-Sea
Page, W.R. Clark's Modern S., Forest Gate
Pagella, C. St. George's S., Southampton
Parr, C.M. Argyle H., Sunderland
Parsons, W.H.M. New Coll., Herne Bay
Pater, G. Salesian S., Battersea
Peate, C.C. Cavendish S., Matlock Bank, Matlock
Pelissero, J. Xaverian Coll., Brighton
Pescarmona, I.F. St. John's Coll., Brixton
Pettit, R.W. Southampton Boys' Coll. and High S., Portswood, Southampton
Pfahl, S.A. New Coll., Herne Bay
Pharo, W. Salesian S., Farnborough
Phillips, D. Salesian S., Farnborough
Pidsley, D. St. Aloysius' Coll., Highgate
Piffard, F.H.C. St. George's S., Southampton
Pinkey, C.A. Lindisfarne Coll., Westcliff-on-Sea
Pomeroy, F. St. Aloysius' Coll., Highgate
Powell, B.N. Taplow Gram. S.
Power, P. Xaverian Coll., Mayfield
Pratt, A. St. Joseph's Acad., Kennington Rd., S.E.
Preston, B. Xaverian Coll., Mayfield
Price, L.R. The College, Weston-super-Mare
Price, R.G.N. St. John's Coll., Southsea
Prime, B. St. Aloysius' Coll., Highgate
Pringle, N. The Conv., Pulteney Rd., Bath
Proud, C. St. Aloysius' Coll., Highgate
Pullan, W.A.J. St. John's Coll., Brixton
Raingeval, M. Marist Bros.' Coll., Grove Ferry
Ramos, E. Xaverian Coll., Brighton
Raven, L. Salesian S., Farnborough
Regnard, H. Salesian S., Battersea
Reilly, S. Xaverian Coll., Mayfield
Reimers, H.H. St. Catherine's Coll., Richmond
Rentzsch, V. St. Aloysius' Coll., Highgate
Richardson, A.T. The Gram. S., Ongar
Riley, C. Salesian S., Battersea
Riva, C. Salesian S., Battersea
Roberts, L.E. Lindisfarne Coll., Westcliff-on-Sea
Robinson, W. The Gram. S., Bentham
Robson, J.H. Lindisfarne Coll., Westcliff-on-Sea
Rogan, G. Salesian S., Farnborough
Rogers, V.F. The Gram. S., Ongar
Rompel, J. Salesian S., Farnborough
Root, R. St. Aloysius' Coll., Highgate
Rosenau, L. St. Joseph's Acad., Kennington Rd., S.E.
Ross, R. St. Joseph's Acad., Kennington Rd., S.E.
Rothwell, E. Salesian S., Farnborough
Russell, G.W. Eastwood Ho! Coll., Felixstowe
Ryan, S. Salesian Oratory S., Wandsworth Common
Sampson, D. The Gram. S., Ongar
Santelli, F. Notre Dame de France, Lisle St., W.C.
Santer, R. Beverley S., Barnes
Scott, D. McP. Richmond Hill S., Richmond
Seguin, F. St. Boniface's Coll., Plymouth
Selway, E. St. Aloysius' Coll., Highgate
Shearing, K. St. Aloysius' Coll., Highgate
Shearman, L. Salesian S., Battersea
Shenton, F.H.L. Froebel H., Devonport
Shepherd, J.A. Richmond Hill S., Richmond
Simm, C.R. Eastward Ho! Coll., Felixstowe
Simmonds, E.R. Margate College
Simon, R.A. The Gram. S., Ongar
Simpson, G. Stafford Coll., Forest Hill
Simpson, H.B. Scorton Gram. S.
Simpson, J.M. Eastward Ho! Coll., Felixstowe
Skivington, F. St. Aloysius' Coll., Highgate
Smith, L.L. St. Joseph's Coll., Norwood
Smithson, H.J. Taunton School
Smyth, S. St. Aloysius' Coll., Highgate
Soar, H.M. Lancaster Coll., W. Norwood
Solly, J. St. Aloysius' Coll., Highgate
Spark, F.H. Argyle H., Sunderland
Sprinz, F. St. Aloysius' Coll., Highgate
Steele, D.G. St. John's Coll., Southsea
Stent, J.F. Green Park Coll., Bath
Stephen, A. Southampton Boys' Coll. and High S., Portswood, Southampton
Stephens, W.S. The Gram. S., Ongar
Stevens, J. Salesian S., Farnborough
Stevenson, G. St. Joseph's Coll., Norwood
Stevenson, J.F.C. The Gram. S., Ongar
Stiff, W. Salesian S., Farnborough
Stone, E.A. Taunton School
Sudworth, J.A. The Catholic Gram. S., West Park, St. Helens
Suffield, P. Xaverian Coll., Brighton
Suso, A. Marist Bros. Coll., Grove Ferry
Sweetman, L.P. Preparatory Coll., Dominican Conv., Wicklow
Swift, T.A. The Catholic Gram. S., West Park, St. Helens
Tamblin, H.G. Froebel H., Devonport
Tanner, J. St. Joseph's Acad., Kennington Rd., S.E.
Tattersall, L.M. Scorton Gram. S.
Taylor, D.O. Lindisfarne Coll., Westcliff-on-Sea
Taylor, T.G. Taunton School
Terry, P. Salesian S., Farnborough
Thomas, C.J. Taunton School
Thomas, G.H. Southampton Boys' Coll. and High S., Portswood, Southampton
Thomas, M. Old College S., Carmarthen
Thompson, F.N. Osborne High S., W. Hartlepool
Thorp, C. Beverley S, Barnes
Toghill, E.C. Stafford Coll., Forest Hill
Toone, L.A. Taunton School
Tothill, F. Clark's Modern S., Forest Gate
Towerzey, R. Salesian Oratory S., Wandsworth Common
Truscott, L.A.L. Tothill S., Plymouth
Tuplin, F.R. Endcliffe Coll., Sheffield
Turnbull, J. Salesian S., Battersea
Tussaud, A. St. Aloysius' Coll., Highgate
Umschlag, J. St. Aloysius' Coll., Highgate
Unwin, R.G.E. Taunton School
Upcott, W.H. Lindisfarne Coll., Westcliff-on-Sea
Vernon, L. St. Aloysius' Coll., Highgate
Vinson, C.C. Taunton School
Wall, B. St. Catherine's Conv., Myddelton Sq., E.C.
Walters, I.V. Taunton School
Walters, J.P. Cheltonia Coll., Streatham
Walters, L. Taunton School
Walton, P. St. Aloysius' Coll., Highgate
Ward, D.R. Margate College
Warry, E.G. Lindisfarne Coll., Westcliff on-Sea
Waters, O. Salesian S., Farnborough
Watson, A.H.S. Argyle H., Sunderland
Watson, D.F. Margate College
Watson, J.K.G. Lindisfarne Coll., Westcliff-on-Sea
Weakley, J. Lindisfarne Coll., Westcliff-on-Sea
Webb, J.E. Streatham Gram. S.
Webber, T.A. St. Joseph's Coll., Norwood
Wells, F.S. Green Park Coll., Bath
Wells, L. St. Aloysius' Coll., Highgate
Wells, P. St. Joseph's Acad., Kennington Rd., S.E.
Wesson, A.S. Richmond Hill S., Richmond
West, R.W. The Modern S., Streatham Common
Westcott, J. St. Aloysius' Coll., Highgate
Whitaker, N. Balham Modern S.
Whitaker, W.B. The Modern S., Streatham Common
White, G.A. St. John's Coll., Brixton
Wilcockson, F. St. Aloysius' Coll., Highgate
Wilkin, J. Scorton Gram. S.
Wilkins, E.M. Taunton School
Wilkinson, N. Argyle H., Sunderland
Williams, D.F. Stafford Coll., Forest Hill
Wilson, G. Xaverian Coll., Mayfield
Wimble, W.J. Southlands Gram. S., Littlestone-on-sea
Windebank, G.H. Green Park Coll., Bath
Wingfield, F.R. Dudley H., Lee
Withall, F.J. St. Aloysius' Coll., Highgate
Wood, S. Salesian S., Battersea
Woodhouse, J. St. Aloysius' Coll., Highgate
Woodward, C. The Gram. S., Ongar
Wright, B. Salesian S., Farnborough
Yates, J.J. The Catholic Gram. S., West Park, St. Helens
Young, D.W.T. University S., Rochester
Zammett, F. St. Aloysius' Coll., Highgate

GIRLS.

Abrahamson, L. Cavendish S., Matlock Bank, Matlock
Allchin, M.M.M.C.C. Holmcroft, Bromley
Allen, B.L. Elmcroft High S., Winchmore Hill, N.
Allen, C.E. Godwin Girl's Coll., Cliftonville, Margate
Allen, M.I. Princess Gardens' S., Belfast
Anderson, W. Knock Inter. S. & Kindergarten, Belfast
Anglim, N. St. Mary's Dominican Conv., Cabra
Baird, N.K. Oriel Bank High S., Davenport
Banks, R.A. Crouch End High S. & Coll., Hornsey
Bate, M. St. Mary's Conv. High S., Rhyl
Bathurst, V.E.M. University School, Rochester
Bauly, E.L. Crouch End High S. & Coll., Hornsey
Beane, E.V.M. St. Ursula's S., Westbury-on-Trym
Bell, B. Norma S., Waterloo
Bérard, G. Conv. of Our Lady of Sion, Holloway
Bethell, E.H. Wincham Hall, Lostock Gralam
Biet, N. The Convent, The Avenue, Southampton
Blackmore, D. Notre Dame High S., Clapham
Bleasdale, M. Beecholme Coll., Belper
Blinkhorn, S.E. Holmcroft, Bromley
Bonfield, K. St. Mary's Dominican Conv., Kingstown
Bonnin, G. Convent de la Mère de Dieu, Surbiton Hill
Boulter, V.L. St. Ursula's S., Westbury-on-Trym
Bourgeois, G. Convent de la Mère de Dieu, Surbiton Hill
Boyd, P.M. The Friends' S., Mountmellick
Boyes, K.M. Lowther Coll., Lytham
Bradley, K. The Convent S., Cadogan St., Chelsea
Brereton, C. St. Mary's, Haddington Rd., Dublin
Brewer, K.M. Holmcroft, Bromley
Brown, D.E. Lowther Coll., Lytham
Brown, I. Notre Dame High S., Clapham
Buckley, M. St. Mary's Dominican Conv., Cabra
Bull, V.M. The College, Goudhurst
Burgess, D.A. The College, Goudhurst
Bush, V.B. High S. for Girls, Chorlton-cum-Hardy
Byrne, F.M. Dominican Conv., Wicklow
Byrne, M. St. Mary's, Haddington Rd., Dublin
Campbell, E.M. Crouch End High S. and Coll., Hornsey
Cantwell, M. St. Mary's Dominican Conv., Cabra
Carey, M. Holy Faith Conv., Clarendon St., Dublin
Carroll, E. St. Mary's, Haddington Rd., Dublin
Carroll, K. St. Mary's Dominican Conv., Cabra
Carton, A. St. Mary's Dominican Conv., Kingstown
Challis, K. St. Anne's Coll., Sanderstead
Channer, L.R. Notre Dame Conv., Woolwich
Chorlton, N. St. Mary's Conv. High S., Rhyl
Christie, H. St. Mary's Day S., Clontarf
Clark, M.O. Southlands Gram. S., Littlestone-on-Sea
Clarke, E.M. Dominican Convent, Wicklow
Clarson, M. St. Mary's Conv., Bruff
Close, K. St. Mary's Conv., Bruff
Cogan, N. St Mary's, Haddington Rd., Dublin
Collett-White, K.A. Lancefield Coll., Westcliff, Southend
Collopy, M. St. Mary's Conv. S., Charleville
Cone, D.M. Dudley H., Stoke Newington
Cooney, O. St. Mary's Dominican Conv., Cabra
Corcoran, B. St. Mary's Conv., Bruff
Cother, M. Loreto Conv., Europa, Gibraltar
Cottrell, A. Private tuition
Courtenay, E. Holy Faith Conv., Clarendon St., Dublin
Cowles, W.M. Hainault High S., Ilford
Cross, N. Scarisbrick Coll., Birkdale
Cundell, D.M. High S. for Girls, Cholton-cum-Hardy
Cunniam, R. Conv. of the Holy Faith, St. Dominick St., Dublin
Dalton, E.M. St. Mary's, Haddington Rd., Dublin
Davies, N. Norma S., Waterloo
Dear, H. The College, Goudhurst
Dempsey, M.M. Dominican Conv., Wicklow
Denham, D. Havelock H., Portsmouth
Derham, K. Schools of the Sacred Heart, Skerries
Deschamps, M. High S. for Girls, Chorlton-cum-Hardy
de Trembinska, M. Conv. of Our Lady of Sion, Holloway
Dixon, E. Clark's Prep. S., Uxbridge Rd., Ealing
Doyle, K. St. Mary's Dominican Conv., Cabra
Drake, S. St. Mary's Conv., Bruff
Drury, K.A. Beecholme Coll., Belper
Duffy, H. St. Mary's Conv., Bruff
Dunn, D.M. Crouch End High S. & Coll., Hornsey
Dunne, M.J. Dominican Conv., Wicklow
Eagleton, D.M. Olive House, Brockley
Edsall, K.N. Eldon Coll., Thornton Heath
Egan, M. Conv. of the Holy Faith, St. Dominick St., Dublin
Evans, G. St. Anne's Coll., Sanderstead
Evans, S.H. Crouch End High S. & Coll., Hornsey
Fabb, J.F. Notre Dame Conv., Woolwich
Farrelly, A. St. Mary's Boarding S., Glasnevin
Fegueux, M. Eastworth H., Chertsey
Fenton, N. St. Mary's Conv., Bruff
Firth, R.D. Wincham Hall, Lostock Gralam
Flanagan, P. Schools of the Sacred Heart, Skerries
Foster, H.M. Penrith High S., Stoke Newington
Fraher, P. St. Mary's Conv. S., Charleville
Franklin, M.M. Norton Lodge, Small Heath
Gannon, E. St. Mary's S., Conv. of Mercy, New Ross
Gellan, M.A. Hill Croft High S., Stamford Hill
Gill, R.C. University School, Rochester
Glasson, M. Notre Dame High S., Clapham
Goldschmidt, A.B. Girls' Gram. S., Levenshulme
Grant, O. Cavendish S., Matlock Bank, Matlock
Gray, J. The Roystons, Penge
Green, G.J. Princess Gardens' S., Belfast
Grier, L. St. Mary's Boarding S., Glasnevin
Grimes, E. Schools of the Sacred Heart, Skerries
Groschke, C.M. Dudley H., Stoke Newington
Grossart, M. Norma S., Waterloo
Guest, M. Girls' Gram. S., Levenshulme
Hannaford, M.K. Belle Vue, Saltash
Hardman, D. Redcliffe S., Teddington-on-Thames
Hardman, G. Redcliffe S., Teddington-on-Thames
Harte, A.N. Princess Gardens' S., Belfast
Hartley, E.A. 293 Park Rd., Oldham
Hayden, E. St. Mary's Boarding S., Glasnevin
Hayden, K. St. Mary's Boarding S., Glasnevin
Heaven, E.M.E. Lancefield Coll., Westcliff, Southend
Hewett, M.E. Holmcroft, Bromley
Hick, B.J. Southlands Gram. S., Littlestone-on-Sea
Hicklin, D. Cumberland H., Stoke Newington
Hoey, M.A. St. Mary's Dominican Conv., Cabra
Housset, G. Convent de la Mère de Dieu, Surbiton Hill
Howard, M.C. Penrith High S., Stoke Newington
Howes, M. Schools of the Sacred Heart, Skerries
Hulls, I.W. Lancefield Coll., Westcliffe, Southend
Hunter, I. Havelock H., Portsmouth
Ingoldby, R.M. Holmcroft, Bromley

GIRLS, LOWER FORMS—*Continued.*

Jackson, M. St. Mary's Day S., Clontarf
Jacobs, D.M. Mansfield Coll., Cliftonville, Margate
Jacobs, E.L. Mansfield Coll., Cliftonville, Margate
James, P.M. St. Ursula's S., Westbury-on-Trym
Jarvis, H.M. Dudley H., Stoke Newington
Jewel, W. Eastworth H., Chertsey
Johnstone, M. St. Mary's, Haddington Rd., Dublin
Joyce, M.J. Lancefield Coll., Westcliff, Southend
Kealy, J. Conv. of the Holy Faith, St. Dominick St., Dublin
Kearney, K. St. Mary's Dominican Conv., Cabra
Keith, C. Cavendish S., Matlock Bank, Matlock
Kelly, G.K. Notre Dame Conv., Woolwich
Kelly, M. St. Philomena's, Coombe, Dublin
Kelly, M.I. Lowther Coll., Lytham
Kendon, D.K. The College, Goudhurst
Kendon, M.M.G. The College, Goudhurst
Kirwin, M. St. Mary's, Haddington Rd., Dublin
Knott, F.M.H. High S., Waltham Cross
Lang, D.T. Mansfield Coll., Cliftonville, Margate
Lapworth, P.C. Norton Lodge, Small Heath
Lean, O.M. Belle Vue, Saltash
Lee, E. Lowther Coll., Lytham
Lees, A.J.D. Drumpellier S., Airdrie
Lightfoot, E.A. Dominican Conv., Wicklow
Lindsay, J. St. Mary's Conv., Bruff
Loose, D.E. The College, Goudhurst
Lustig, D. Mansfield Coll., Cliftonville, Margate
Maguire, K. Schools of the Sacred Heart, Skerries
Marrinan, N. St. Mary's Conv., Bruff
Mason, J. St. Mary's, Haddington Rd., Dublin
Masters, M.V. Eldon Coll., Thornton Heath
Masters, T. Notre Dame High S., Clapham
Mayne, M. Ladies' S., Newtownards
McCormack, N. Princess Gardens S., Belfast
McEvoy, B. St. Mary's Dominican Conv., Cabra
McEvoy, I. St. Mary's Dominican Conv., Cabra
McGibbon, C.C. Drumpellier S., Airdrie
McGowan, D. Holy Faith Conv., Clarendon St., Dublin
McGuckin, A. Holy Faith Conv., Clarendon St., Dublin
McKenna, J.M. Dominican Conv., Wicklow
McKenzie, N. Notre Dame High School, Clapham
McMunn, L.E. The Friends' S., Mountmellick
McQuillan, S.F. The Friends' S., Mountmellick
Menton, M. St. Mary's Dominican Conv., Kingstown
Meredith, C. Crouch End High S. and Coll., Hornsey
Miller, P.M. Storrington Coll., Westcliff-on-Sea
Millward, F.E. Girls' Gram. S., Levenshulme
Monahan, M. St. Philomena's, Coombe, Dublin
Mullens, M. St. Mary's Conv., Bruff
Mulvin, A. St. Mary's Dominican Conv., Cabra
Murray, A. St. Mary's, Haddington Rd., Dublin
Nash, F.A. The Roystons, Penge
Nichols, D. Notre Dame High S., Clapham
Nolan, I.L. Dominican Conv., Wicklow
Northover, V.E. Eldon Coll., Thornton Heath
O'Brien, D. St. Mary's Conv. S., Charleville
O'Brien, M. St. Mary's Conv. S., Charleville
O'Brien, N. St. Mary's Conv. S., Charleville
O'Byrne, M. Conv. of the Holy Faith, St. Dominick St., Dublin
O'Carroll, E. St. Mary's Dominican Conv., Cabra
O'Connell, K.M. Dominican Conv., Wicklow
O'Connor, N. St. Mary's Conv. S., Charleville
O'Donnell, B. St. Mary's Conv. S., Charleville
O'Donohoe, I. Notre Dame High S., Clapham
O'Dwyer, A. St. Mary's Conv., Bruff
O'Regan, M. St. Mary's Conv., Bruff
O'Reilly, K. St. Philomena's, Coombe, Dublin
O'Reilly, K. St. Philomena's, Coombe, Dublin
O'Shaughnessy, J. St. Mary's Conv., Bruff
O'Sullivan, B. St. Mary's Conv., Bruff
Page, M. Storrington Coll., Westcliff-on-Sea
Palmer, E.A. The College, Goudhurst
Palmer, H.L.B. South Lodge, Broadstairs
Parkinson, E. Rougemont Coll., Blackpool
Parsons, M. St. Mary's, Haddington Rd., Dublin
Parton, N.E.L. Notre Dame Conv., Woolwich
Patmore, G.M. Highams Park S., Hale End, Chingford
Paton, M.V. Lancefield Coll., Westcliff, Southend
Plant, O.E. Crouch End High S. & Coll., Hornsey
Polden, A.S. Southlands Gram. S., Littlestone-on-Sea
Powell, M.M. Dominican Conv., Wicklow
Power, M. St. Mary's Dominican Conv., Kingstown
Power, P. St. Mary's, Haddington Rd., Dublin
Priest, A.C. Conv. St. Maur, Weybridge
Purcell, M.J. St. Mary's Dominican Conv., Kingstown
Quigley, C. St Mary's S., Conv. of Mercy, New Ross
Rainer, C. Melbourne Coll., Thornton Heath
Reid, M. The Convent, The Avenue, Southampton
Rice, E.M. Dominican Conv., Wicklow
Riordan, M.C. St. Mary's Conv., Bruff
Roberts, M.P. Kelsey H., Hornsey Rise
Robson, M. Princess Gardens' S., Belfast
Roche, M.M. St. Mary's S., Conv. of Mercy, New Ross
Rose, M.C. Ivydene, South Shore, Blackpool
Rothery, D.I. Belle Vue, Saltash
Ruffell, B.W. St. Ursula's S., Westbury-on-Trym
Ryan, T. St. Mary's Dominican Conv., Cabra
Sacarello, M. Loreto Conv., Europa, Gibraltar
Schramm, W. Parkfield S., Westcliff-on-Sea
Scott, M.E.F. Holmcroft, Bromley
Scrivings, M.L. Highams Park S., Hale End, Chingford
Seales, K. St. Mary's Day S., Clontarf
Shepherd, O.G. The College, Goudhurst
Siddall, F. Wincham Hall, Lostock Gralam
Simms, K. Ladies' S., Newtownards
Simpson, M.F. Princess Gardens' S., Belfast
Sims, W. University School, Rochester
Smith, D. University School, Rochester
Smith, H.E. Lancefield Coll., Westcliff, Southend
Smith, I.G. High S., Twickenham Green
Smith, K.S. Hartlands Road S., Fareham
Smithers, W.A. St. Mary's Coll., Barnes
Smyth, K. St. Mary's Dominican Conv., Cabra
Spencer, L. Girls' Gram. S., Levenshulme
Spencer, M. Convent de la Mère de Dieu, Surbiton Hill
Spittle, S. Conv. of the Compassion, Olton
Stockdale, K. Oriel Bank High S., Davenport
Sturgess, G.I. The College, Goudhurst
Summers, M.V.M. Lancefield Coll., Westcliff, Southend
Symington, J.B. Drumpellier S., Airdrie
Sythes, A.S. Princess Gardens S., Belfast
Tassell, V.M. The College, Goudhurst
Thompson, E.M. Beecholme Coll., Belper
Thompson, N.G. Lowther Coll., Lytham
Thornhill, L. St. Mary's Conv., Bruff
Trigg, B.A. Hartlands Road S., Fareham
Tyler, G. Cumberland H., Brighton
Waghorn, M.M. The College, Goudhurst
Wakefield, M. Shenley H., Highgate
Walpole, I.H.R. The Friends' S., Mountmellick
Walshe, A. St. Mary's Boarding S., Glasnevin
Ward, E. St. Mary's Dominican Conv., Cabra
Webber, R. Notre Dame High S., Clapham
Welfare, M.G. Meeching Place Conv., Newhaven
Wheaton, K.G. Hainault High S., Ilford
Whelan, A. St. Mary's Dominican Conv., Kingstown
Whelan, M.E. St. Mary's Dominican Conv., Cabra
White, A. Schools of the Sacred Heart, Skerries
White, D. Scarisbrick Coll., Birkdale
Wilde, E.C. 293 Park Road, Oldham
Wilkins, M.M. St. Ursula's S., Westbury-on-Trym
Wilkinson, R. Meeching Place Conv., Newhaven
Williams, F.E.M. Highams Park S., Hale End, Chingford
Willmott, W.M. Penrith High S., Stoke Newington
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Wright, I. The College, Goudhurst
Wright, M. Notre Dame High S., Clapham
Youngleson, D.G. Mansfield Coll., Cliftonville, Margate

CAREERS FOR GIRLS.*

IV.—JOURNALISM.

By L. KEYSER YATES.

WHEN at the close of her schooldays the modern girl is confronted with the problem of her future career—now no longer a choice between marriage, "governessing," or needlework—she is often apt to be bewildered by the wealth of opportunity before her. Guidance by parent or teacher in her selection is, moreover, frequently handicapped, at least, as to those professions more recently opened to women, since the practical experience of pioneers has as yet not been formulated.

Such is the position with regard to journalism, for although women writers have long since gained distinction as outside contributors to the Press, appointments to the serious work on the inside staff of the great newspapers have until recently been made exclusively from the ranks of Pressmen. Even to-day a woman is rarely, if ever, found as sub-editor or assistant editor on one of the great "dailies," and one could probably count on the fingers of one hand the women who have been privileged to "make up" independently a sheet of such a journal. Lord Northcliffe would indeed have us believe that inherent sex disability will ever prevent women from transforming with the necessary rapidity sheets of manuscript into tidy columns for the printer, but one may rest assured that the real difficulty in this connexion is not absence of nerve-force, but lack of opportunity for technical training.

Despite all such bars to journalistic progress women are nevertheless creeping into the profession and, given the chance of acquisition of better craftsmanship, there is no doubt that in the near future they will find other posts available on the staffs of the daily Press besides the present secretarial positions, the duties of the reporter, and the compilation of that medley of fashion-plates and cookery recipes known as the "Women's Page," which, strictly speaking, is not journalism at all.

The weekly papers have already admitted women more freely to responsible staff positions, and it is therefore in this class of journalism that the starting-point for a girl can be more easily obtained. But before contemplating Press work as a career the aspirant should clearly apprehend the nature of the work and of its financial prospects, as well as of the qualifications necessary for its successful accomplishment. It is not infrequent that a girl who has shown signs of literary taste while at school or University becomes bitten with the desire to be a journalist. She may be absolutely unsuitable to the life, which demands for even a modicum of success much physical endurance as well as mental alertness and a wide human sympathy. The glamour of the Press unfortunately hides actual conditions from her view, and she enters on a career of disappointment ushered in by what has been aptly described as the "woman's five years in Fleet Street." But the enchantment of the Press is undeniable and, indeed, remains constant in the case of most seasoned journalists. It is questionable that, if these frequenters of Fleet Street, aware of the strenuous conditions and instability of their calling, were allowed another chance in life, whether the majority would not rechoose the profession of journalism. To the youthful aspirant the allurement is even greater. For some hidden reason—probably the inherited pride in the human conquest of the written word—there is a subtle delight for the newcomer to the Press in seeing himself or herself "in print." The pleasure soon palls, it is true, but hardly any hoary journalist could deny the glow of satisfaction—hardly surpassable by any other intellectual pleasure—that he felt over his first published articles. Then there is the flavour of adventure and romance attached to the profession comparable to the fascination of the stage, or, to a more juvenile mind, of the circus. At every turn where life breaks happily into deeds or events appears the ubiquitous member of the Press. At all fore-

* For previous articles in this series see May, June, and July numbers.

gatherings of sport or pleasure, in the turmoil of elections, in the thick of the street adventure, Youth encounters the busy and apparently interested and interesting persons of "the Fourth Estate." Such a life in the open, freed from office restraints, with prospects of romantic positions as descriptive reporter at home or as correspondent abroad, seems to the inexperienced aspirant well worth the living (as in reality it is). There is, however, the other side of the life, its strenuousness and frequently its feverish haste, its long hours, often in offices of which the doors are never closed; on the daily paper there is night-work to reckon with, and there must always be irregular hours and periods of strain. Again, the work is unstable. Newspapers of to-day change hands with an alarming suddenness, and an alteration of editor often means a substitution of staff and a hiatus in the salaries of the outgoing members. A competent journalist, it is true, especially one who is expert on a series of subjects of popular interest, can usually fill the interval between two staff appointments with fairly lucrative work as a free lance, but even an experienced worker is liable to the blocking of articles by unforeseen happenings of public importance.

It is precisely this other side of journalism that ought to be contemplated by parent or guardian before the profession is chosen by a girl. It ought, moreover, to be clearly realized that, although a woman journalist may earn a living wage, no such large amounts as are often hinted at in women's clubs are the normal wages of a woman member of a newspaper staff. After a good many years' experience a woman will probably receive a salary of £3 to £5 a week for the usual work for her paper. She will probably have opportunities for increasing this amount, but she must always reckon to save against the rainy day which is more likely to arrive in Press work than in most of the other professions.

But after placing the true conditions of journalism before a young woman who is sound of body and mind, should she still desire to enter that profession every step must be taken to give her the best possible training. As a preliminary equipment shorthand is desirable, but typewriting is unnecessary unless the intention is to make an entrance by way of a secretarial position. A knowledge of French and German, or indeed of any other European tongue, is helpful, and as much geographical information as can be stored in odd corners of the mind will never come amiss. From the outset of her career the Presswoman should follow current events by the careful study of a trustworthy daily paper—a record of happenings—and of a first-class weekly periodical—a commentary on the news of the day. She must also acquire information as to personalities who are forming the history of the world, and should she early fix the habit of noting titles and other details in this connexion she will find it invaluable for the rapid work of the daily Press. A good maxim for Press work is a little knowledge on a great variety of subjects; for such an acquisition, said to be hurtful to other careers, merely mellows a journalist. With some such foundation the Presswoman should seek opportunity for instruction in the technique of her trade. There are nowadays many schools of journalism, but the present writer would plead for an apprenticeship to the real thing, a newspaper in the making. Probably an opening can be found on a weekly paper, but before the journalist's education is complete experience should be obtained, if at all possible, on the staff of a big "daily." Not only is there more opportunity for handling news on the daily paper, but practice is afforded for dealing with information at great speed and at the same time with accuracy. For, in spite of a general conception to the contrary, accuracy is the breath of life of good journalism, and on any first-rate "daily" no effort will be spared to ensure the correctness of a report or of a doubtful word sent over the wires, even at the critical nightly moment when the sheets are being "put to bed."

The young journalist would do well to learn each branch of journalism in turn, from verbatim reporting to the summarizing of a Blue book, and should obtain practice in the delicate art of interviewing, in the sense that "the prince of interviewers," Mr. W. T. Stead, conceived the term. The business of the sub-editor should also be mastered, since the efficient journalist may one day become the successful editor, and the display of the material is an important part of editorial equipment. It should, indeed, always be borne in mind that a newspaper that is unpleasing to the eye is seriously handicapped in its sale, and that it is not unknown for a periodical to languish unto death from the ragged appearance of its columns.

A training, such as here outlined, necessarily involves many years of arduous application and is sometimes difficult to obtain. But given enthusiasm for the chosen profession, no journalist, least of all a woman, will count the cost. An all-round efficiency once secured, the possibilities of the career will open up and the well-trained and honest woman journalist will assuredly realize at length that her pen has turned into a tiny sceptre wielding a power "on the side of the angels" the extent of which no one can gauge.

"PETITES FRANÇAISES."

By Marion Cahill.

My little French girls — Parisiennes — are very different from their little English sisters—different in upbringing, in ideas, in manners, in nearly everything. Some remarks they make, in utter innocence, would shock an English mother; yet, on the other hand, the freedom allowed our English children would paralyse a French parent. Perhaps the following "thumb-nail" sketches will serve to bring home some of these points of difference, and may be of interest to English readers.

French girls are compact of emotions, subtleties, nerves, intuitions that are foreign to the Anglo-Saxon child. They require much sympathy and understanding from those with whom they come into contact. In a sympathetic atmosphere they expand like buds in the spring—they are all smiles, gaiety, and happiness. In an unsympathetic atmosphere they are depressed, tearful, despairing. But in joy or sorrow, laughter or tears, they never forget the care due to their *toilette*. Ah! that *toilette* so dear to the little Parisienne! A French baby knows when her bonnet suits her and when her ribbons are *ravissants*. She will weep bitterly on being forced into an ugly pinafore, will have paroxysms of temper when, in a fit of naughtiness, she will cut up the offending garment.

But who so happy as Suzanne, Marcelle, Armande, when her whole get-up is "enticing"? Then the sun comes out, and like a butterfly she dances here and there in the sunshine of approval. She will stand before the glass and caress and coax her pretty ribbons into bewitching knots and bows. "Ah!" she murmurs to the reflection of her chic little face in the glass, "C'est tout-à-fait charmante ma toilette, et moi, que je suis belle!"

I.

Suzanne is seventeen. To-day I found her in tears.

"What is it, Suzanne? Anything the matter?"

"Ah, Miss! see you, but I am desolated. My father he write to me, that it is time to find a husband, and he say that my cousin Achille, the son of my Aunt Lucienne, is of an age suitable. Also, that all are willing. Achille, too, he would like it. But I say *No* to my father. I say to him, '*C'est moi*, who marries herself—not you; then I choose for myself. It is for my life.'"

"Well, don't worry," I said. "Perhaps your mother can put things right."

"Ah, never in life! See you my mother, she is an invalid. She has an appendicite, and a chronic bronchite. She lie always in bed. My father he write to me 'I have done all what I can for your mother—but to no purpose. Then all must go their way—the appendicite, the chronic bronchite—I can no more.'"

"Things are sure to come right," I said hopefully. "Don't worry."

A few days later Suzanne came to me again.

"Ah, mademoiselle! I am 'appy. I have found a husband at last. At least—listen! You know it is difficult—but difficult! to find a husband who is also good *Catholique*. and I said to my mother, 'Never will I marry myself with one who is not a Christian. Never of my life.' And my father he say, 'You will soon change your mind,' and I say 'Never! unless I marry good *Catholique*, then I become "old girl."' So I go to my confessor, and I tell him all. And he say, 'Cheer up, my little Suzanne. We will pray to St. Joseph to find you a good Catholic. Have no fear, St. Joseph will do it—I have no doubt.' So I come away quite 'appy. And three days, and I go to him again. 'Ah! *mon père!* 'Ave you pray to St. Joseph, to find me good husband who is also good Catholic?' And he say to me: 'Take courage, little one. We have reason to rejoice. See! I have studied the statistics of the military colleges and schools, and everywhere the number of good Catholic boys increases. Have no fear then. When the time arrives, we find thee a good husband. But, first, we must let the little husband grow, *n'est-ce pas?*"

II.

Solange is seven. She lives in a world of her own peopled by fairies, saints, angels, and devils.

"Now, Solange, tell me a story, in your very best English."

"Mais, mademoiselle, je ne puis pas ——"

"Come—begin," I said, encouragingly.

"Once upon a time, there was a little girl—*comment s'appelle en anglais 'Chapeau-rouge'*? Ah! *oui!* Red-Ridin'-'Ood—and her mother say to 'er: 'You must go to your grandmother and take her these things from me—some heggs—some butter,' and she go, and in the forest she meet a *loup* and 'e say, 'Good-mornin', Red-Ridin'-Ood. Where are you goin'?' 'I go to my grandmother, to take some heggs, some butter.' Then the *loup—qu'est-ce que c'est 'loup' en Anglais?—ah oui! 'wolf'*—'e say *'Au revoir'!* And 'e go to the grandmother first, and 'e get in the bed. Then Red-Ridin'-'Ood—she come and she say: 'Oh! Grandmother, 'ow your eyes they are big!' 'All better to see you, *chérie.*' 'Oh! la! la! your teeth, 'ow they are big, grandmother.' 'All better to bite, *chérie.*' Then he jump out of bed, and the father of *Chapeau-rouge* arrive and shoot 'im. . . ."

"But ah, mademoiselle, I can tell you another story—a story of the *diable! Ecoutez, mademoiselle, et Muguette, tais-toi—tu m'agaces.*" This to Muguette, who is weary of hearing about the devil. '*Une fois,* there was a monastery, and in it, *des moines,* and the *diable* he go to the abbot and he say: '*Qu'est-ce que vous faites dans cette galère, mon vieux?*' 'I am here to guard my friends,' said the abbot. '*Et "vous," monsieur, qu'est-ce que vous faites ici?*' 'Oh, la! la!' said the devil. 'I too guard my friends.' And the next day some of *des moines* they come and ask to make the confession, because they had had the devil in themselves."

"Now me," said Muguette firmly. "I tell a tale, *moi,* of a *tigre.*" Here she rolled her eyes and growled, clenching and unclenching her little hands. "'E lived in the forrest—*ce tigre.*"

"And the *bébés,* 'ow many 'ad 'e?" asked Solange eagerly.

"None," said Muguette with finality in her voice. "He was *un monsieur—ce tigre-là.*"

Muguette has a fine dramatic gift, and soon, as far as she was concerned, the schoolroom became a jungle, and the harrowing tale of the *tigre* had to be suspended.

III.

Great excitement pervades the house. We are all rehearsing the *comédie.* The play is a short pretty one, in English, dealing with the life of St. Catherine of Alexandria. For weeks we have rehearsed till all are "word-perfect," and the result is very creditable. It has been very difficult to weed out Gallic gestures not at all in keeping with the play, which deals with the martyrdom of the saint at the command of the Roman Emperor. The actual scene depicting the martyrdom is most dramatic, but in some subtle way it has grown very like a scene from the French Revolution. For one thing the two "torturers" insisted on wearing *bonnets-rouges.* They protested they could not "feel" the part without. So they stood, one on either side of the wheel of torture, which, most surely, should have been the guillotine.

Then the Emperor insisted on wearing her hair down her back. "But it is not correct," I persisted. "The Roman Emperors did not wear long black hair hanging down to their waists."

"*Ah, mademoiselle! Je vous en prie.* My hairs, they are all of which I am vanitous. See! I am not beautiful! But my hairs! yes! And my mother she will be desolated if she do not see my hairs."

So I left the Emperor and went to St. Catherine.

"*Ma robe, mademoiselle*—is it well?—is it well?"

It was very well—too well. I hardly liked to point out that after a tedious imprisonment the saint would not be very likely to arrive at the place of execution in a white velvet robe sewn with brilliants from the neck to the hem. However, I felt sure she would not part from the white velvet robe, and as the tears come so quickly ——

So I turned for comfort to the soldiers. But they had insisted on curling their hair and wearing hats with ostrich feathers. So they were like miniature editions of "D'Artagnan." However, their legs and feet were quite correct—quite Roman.

The Empress was wearing on her hair the very latest Paris creation to be worn at the theatre, the restaurant, &c. But she looked so charming—I left it. The "brutal populace" stood about in corners practising their menacing howls of hatred and despair. Every now and then, one would dart out from her companions, and clenching her white teeth would growl like an engaging puppy.

"Is it well, mademoiselle, is it well?"

And Solange? She was too small to take a part, but had begged to be "in it" with such heart-rending sobs that I had given in. And in a long white nightgown, a white fillet on her hair, and sandals on her feet, she stood among the "populace"—well to the front—growling always when the others had just finished, and coming in generally with everything just a minute too late. The scene in which she had a "thinking" part came at the end of the evening—it was the last, and she was dead with sleep. But bravely she held up, propping open her eyes with her fingers, and gazing pathetically, with eyes that already saw double, at the Saint and the Emperor and the *bonnets-rouges.* Then she toppled over fast asleep. And as she was hastily extricated and carried away to bed she nestled her head against the soft arms that supported her, and smiled, for in her dreams she was still "in it."

The week which ensued between this, the first dress rehearsal and the final performance, was devoted to polishing and revising. The children are born artists and were quick to see that to be really effective it was necessary to be true in art as in nature, and that picturesque effects obtained by having recourse to the reign of the Grand Monarque and the period of the Revolution, were better omitted in a faithful representation of the days of the Roman Empire.

And last, but not least, the Roman Emperor was persuaded to forgo the display of his beautiful "hairs."

"I am not beautiful, *mon Dieu,* no!" she exclaimed, as she looked at her reflection in the glass. "In truth, one sacrifices much to art!"

(*To be continued.*)

NINETY boy and girl scholars and a number of teachers and municipal representatives of Southampton went to Cherbourg as the guests of the Municipality on the occasion of the national festival to commemorate the taking of the Bastille on July 14, 1789.

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MEMBERS' MEETINGS.

28th September, 1914. — Conversazione. The Guests will be received by Sir PHILIP and Lady MAGNUS.

14th October, 1914. — Lecture entitled "Some Features of Ancient Greek Education," with lantern slides. By FRANK ROSCOE, M.A.

3rd November, 1914.—Lecture on Child Education, with moving pictures. By Dr. MARIA MONTESSORI.

9th December, 1914. — Lecture entitled "About Great Pictures," with lantern illustrations. By RUDOLPH DE CORDOVA.

20th January, 1915. — Lecture entitled "Pure Fun," with lantern illustrations and charcoal sketches. By WILL OWEN.

17th February, 1915. — Lecture entitled "The Fairyland of Nature," with lantern illustrations and moving pictures. By RICHARD KEARTON, F.Z.S., F.R.P.S.

17th March, 1915.—Song-Lecture entitled "Three Centuries of English Song." By Madame BERTHA MOORE.

MEMBERS' DINNER.

Arrangements will be made for a Dinner, for Members and their Friends, to take place in the early part of January, 1915.

LECTURES FOR TEACHERS.

The Second Course of Lectures (Forty-second Annual Series), by Prof. J. ADAMS, M.A., B.Sc., LL.D., F.C.P., on "Problems in School Practice," will commence on Thursday, the 1st of October, at 7 p.m.

The purpose of the course s to present the principles of teaching practice in the way most suited to their application to the ordinary work of a school. In the ultimate resort every teacher must apply for himself the principles of his profession, but he may be greatly helped by observing how others have dealt with the problems he must face. To this end the lectures will be very copiously illustrated by references to the teaching of the various subjects of the ordinary school course, while particular attention will be given to those subjects that must be taught by all teachers who are not specialists. The lecturer will base his suggestions on the state of things actually existing in the schools of the present day.

For Syllabus, see page 410.

EXAMINATIONS.

Diplomas. — The Winter Examination of Teachers for the Diplomas of the College will commence on the 28th of December, 1914.

Practical Examination for Certificates of Ability to Teach.—The next Practical Examination will be held in October, 1914.

Examination of Foreign Teachers for Certificates of Proficiency in English.—The next Examination will commence on the 31st of December, 1914.

Certificate Examinations. — The Christmas Examination for Certificates will commence on the 7th of December, 1914.

Lower Forms Examinations. — The Christmas Examination will commence on the 7th of December, 1914.

Professional Preliminary Examinations.—These Examinations are held in March and September. The Spring Examination in 1915 will commence on the 9th of March.

Inspection and Examination of Schools.—Inspectors and Examiners are appointed by the College for the Inspection and Examination of Public and Private Schools.

The Regulations for the above Examinations can be obtained on application to the Secretary.

G. CHALMERS, *Secretary.*

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The purpose of the course is to present the principles of teaching practice in the way most suited to their application to the ordinary work of a school. In the ultimate resort every teacher must apply for himself the principles of his profession, but he may be greatly helped by observing how others have dealt with the problems he must face. To this end the lectures will be very copiously illustrated by references to the teaching of the various subjects of the ordinary school course, while particular attention will be given to those subjects that must be taught by all teachers who are not specialists. The lecturer will base his suggestions on the state of things actually existing in the schools of the present day.

SYLLABUS.

I. (*Oct.* 1.) *The Teacher's Self-Appraisement.*—Need for and danger of mental stock-taking by the teacher: qualities of the ideal teacher: co-efficients of the teacher's powers: how to make the best of the qualities actually possessed: manipulation of the pupils' estimate of the teacher: source of the teacher's authority: modesty and its dangers: sincerity and its implications: the teacher as actor: imposition of teacher's character upon the pupils: precept and example.

II. (*Oct.* 8.) *The Natural History of the Pupil.*—Child-study and its dangers: the living pupil here and now before the teacher: the "average" child, and the type: the "human" boy (and girl) as pupil: relation of age to development: description of various types of troublesome pupils: dullness and its manipulation: artificial stupidity: tests of intelligence: the precocious pupil and his treatment: aids towards putting ourselves in the mental attitude of our pupils: the "little man" fallacy.

III. (*Oct.* 15.) *Place and Function of Class Instruction.*—Class instruction always a compromise: an economic necessity: Dr. Montessori's views on the use of the class in instruction: advantages enjoyed by the private coach: compensations of the class teacher in respect of (*a*) mere instruction, and (*b*) real education: psychological nature of the class: general influence of collective psychology in modifying class management: what is implied in the *size* of a class: attempts of MacMunn and others to combine the advantages of class and individual instruction.

IV. (*Oct.* 22.) *Administrative Limitations of the Teacher's Freedom.*—His many masters: regulations of the Board of Education and of the Local Authorities and School Governors: Syllabuses, Time-Tables, Schemes of work: margin of liberty: too common lack of willingness to accept what liberty is left: the official mind and its manipulation: an instructive bit of law: the official art of compromise: the art of interpreting regulations: the manipulation of conflicting regulations: the teacher as himself an official: the teacher as diplomat.

V. (*Oct.* 29.) *Free Discipline.*—Very practical nature of the problem involved: Montessori System only one form in which it appears: Tolstoi's anarchic school at Yasnaya Polyana: the spirit of the age: two contrasted ideals—self-realisation and self-expression: freedom *versus* caprice: self-imposed restrictions implied in real freedom: correlative increase of freedom and restrictions: internal and external control: freedom and self-control: reconciliation of opposite controls by reference to the invisible and invariable third.

VI. (*Nov.* 5.) *Newer Methods of Teaching.*—General advance in effectiveness of method: accompanying development of professional conscience: danger of falling behind the times: relation of theory to method: relation of theory to experience: danger of excess of theory and of lack of theory: the doctrinaire and the empiric: the pedagogic type of mind and its dangers: means of keeping in touch with the newer educational developments: attitude to be adopted towards "fads" in education: need for certain fixed canons in educational criticism: the development of an objective standard.

VII. (*Nov.* 12.) *School Books.*—The economic aspect: popular criticism of the teacher's attitude: the ownership of such books both in economic and educational aspects: danger of the school book usurping the teacher's place: parental criticisms on this matter: school stationery and its dangers: paper, print, binding, and illustrations of school books: hygienic considerations: pupils as makers of school books: advantages and dangers of note-taking by pupils: different editions of school books and consequent complications.

VIII. (*Nov.* 19.) *Use of Libraries in School.*—Nature and function of school library: the economic aspect and the educational: differences between class library and school library: preliminary training of the pupils in the mere handling of books as books: the æsthetic and the didactic aims of book-using, and the correlation of these aims: special use of the reference library: rudimentary research: manipulation of catalogues and indexes: bibliographies and their uses: the best use of external libraries, particularly the ordinary public library.

IX. (*Nov.* 26.) *Written Exercises and their Correction.*—Need for a great deal of written work in school: yet certain experiments in Illinois prove possibility of excess: relation between form and matter: "having something to say and having to say something": present quarrel among teachers in America: every written exercise should be regarded as an exercise in composition and marked as such: teachers of other subjects must make themselves responsible for the correction of the English of their pupils: danger of wasting time in over-refined correction: need for conventionalised contractions: burden of actual *correction* to be thrown upon the pupil: teacher to limit himself to marking.

X. (*Dec.* 3.) *Specialisation.*—Modern tendency towards specialisation even in elementary schools: occasional confusion between pupil-specialisation and teacher-specialisation: time-table difficulties involved when specialist staff is employed: consequent modification of organisation: advantages of the specialist system: possible dangers: the German *ordinarius* and the English Form-Master with the correlative kinds of school organisation: stages at which the Form system and the Specialist system each does its best work: possibility of an effective combination of the two.

XI. (*Dec.* 10.) *Experiment in School Work.*—Every intelligent teacher is experimenting all the time: clear distinction between *experience* and *experiment*: increase in deliberate experimenting of late years: justification of the suspicion the public shows of school experiments: the brass instrument experiment: motives of the experimenters: possibility of combining the advancement of the study of education with the promotion of the highest good of the individuals experimented upon: experimental pedagogy and its literature: need for "control" in school experiments: effect of experiment in increasing interest in school work.

XII. (*Dec.* 17.) *Testing the Results of Teaching.*—Contrast of inspection and examination: difference between testing *final* results and intermediate results: two forms in which examination is carried on (*a*) to test by means of reproduction, (*b*) to test by means of intelligent application of knowledge acquired: internal and external examinations: the teacher as examiner: how to draw up an examination paper: how to mark the worked papers: numerical *versus* literal marks: how to secure uniformity of standard: how to prepare pupils for an external examination with the minimum amount of injury to themselves.

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CONTENTS.

Page
Leader: The Daily Round 413
Notes 414
The Education Debate — State Grants — Conferences — Girls' School Yearbook—The Register—Examinations for Secondary Schools — Elementary Schools — To Help the Country — The Central Welsh Board—Mme Montessori in England.
Summary of the Month 416
Whom shall we Teach? By D. R. Harris 417
The Montessori Conference. By H. Bompas Smith 418
Conference on Further Education at Letchworth 419
The Conference of Teachers of English at Stratford-on-Avon. By S. B. H. Mais 421
Prize Competition 422
Current Events 422
Sane Sex Teaching. V: Training the Instructors. By Nora H. March 425
Careers for Girls. V: A Comparison of Opportunity in Various Countries. By Miss C. C. Lyon 427
"Petites Françaises." By Marion Cahill (*continued*) 429
A Standard for the King's English. By Prof. Walter Rippmann 430
Reviews 431
Comment Apprendre le Latin à nos Fils (Bezard); A History of University Reform from 1800 A.D. to the present Time (Tillyard); Expectant Motherhood — its Supervision and Hygiene (Ballantyne); The Government of Man (Brett); &c., &c.
General Notices 434
Publications Received 437
Mathematics 439

The Educational Times.

THE DAILY ROUND.

During the crisis through which this country is now passing it is not easy to go about our daily business as before, yet this is exactly what we must endeavour to do. The state of war came upon us a month ago, so suddenly and so unexpectedly, that for the moment all activity, except that which directly bore upon aiding the war, seemed to be paralysed. Everyone was keenly anxious to do something to help the country; all else seemed not to matter. Perhaps there is not much that most of us non-combatants can do directly, but indirectly we can do much. We can determine to preserve an even mind and a cheerful temper; we can try to maintain our sense of proportion and so avoid being carried away by wild rumours or yielding to panic. In England we are saved the worst horrors that fall upon those who are living in the battle area. We may well try to realize what it has meant to be living in Liége during the past month in order that we may grasp the seriousness of war. But it is not good to dwell with morbid persistence upon the war until our will-power is sapped and we can do nothing but wait anxiously for news. The mind must be diverted, so far as possible, into other channels of thought in order that we may retain our normal balance. The quiet and cheerful courage of the individual does much to help the nation.

One of the terrors of war is that a vast mass of evil passion is let loose. Suspicion, hatred, selfishness, and cruelty may become rampant; on the other hand, generous and noble feelings are also produced. For the sake of the progress of humanity we hope the latter feelings may predominate. Each individual can do what lies in his power to bring this about. For instance, a man may be on the alert against hostile spies; but, if he allows himself to be overcome by the suspiciousness that sees a danger in every shadow, he injures himself and does no good to his country. Mental balance must be maintained. No one can say how long the war may last. It has but just begun, and so far we in England have suffered little but inconvenience. There may be severe sufferings in store for us. Through them all we must remain steadfast. For this war will continue until the military aggressiveness of the war party in Prussia is ended.

It must be remembered that we have no quarrel with the majority of the German people. They have suffered, and are suffering, from the incubus of the Prussian military caste. There can be but one end to the war, however long it may be delayed. Then the new Germany will combine with England and France in the march of progress. It is of especial importance to remember this in our schools. The teacher of German has been looked upon as an ambassador from his country in the cause of peace. The present state of war must not blind us to what has been achieved. We are connected with Germans in a number of ways—we study their language, their history, their literature, and their scientific researches. This is not the time to increase and exaggerate racial distinctions. The civilized world is deeply interested in overthrowing the military clique in Prussia. But we make a mistake if we believe that the whole of the German people is imbued with this military feeling. Germans have been drilled into obedience and organized till their will power is paralysed; but we are fighting to give them the opportunity for freedom. This is the splendid work in which England is helping—to form a Germany freed from military terrorism.

In the first week or two of the war there was a general disposition to put an end to all our regular occupations. It was said that schools and Universities would not open. From that state of panic we have recovered. All educational institutions will open as usual after the summer holidays. Some teachers will be absent, and perhaps some of the elder pupils. The ordinary time-table may

need modification to suit the changed circumstances. Some of the Boy Scouts may still be wanted for military duties; some of the girls may be engaged in helping the Red Cross. But, so far as possible, regular work, regular games, and regular recreation must proceed as usual, both for pupils and for adults. A large amount of energy is aroused by the exceptional circumstances. This must not be dissipated in empty flag-waving, but it must be directed into proper channels. There is no need to minimize the seriousness of the struggle in which we are engaged, or to make light of the forces against us; but we can do our best to prevent ourselves and our pupils from dwelling on the war to the exclusion of all other subjects of thought; we can try to check ill-balanced or panic-stricken judgment, and to discourage any ebullition of racial hatred. Not every one can be a combatant; but all may help their country by showing steadfast courage in carrying out the daily round of their duties.

NOTES.

The Education Debate.

The debate on the Education Estimates was cut short by the pressure of business in connexion with the Home Rule Bill for Ireland. Comparatively little criticism was made. Sir Philip Magnus laid great stress on the need for more handicraft teaching and for better organization of continuation schools. Subsequent speakers spoke as if instruction in handicraft meant that the scholars were bound to become manual workers. Of course, this is not the right point of view. It is believed, and experience offers considerable proof, that, in the early stages of education, manual dexterity reacts favourably upon mental development. In his reply Mr. Pease assured Sir Philip Magnus that experiments made by some counties in the introduction of manual instruction into higher-grade schools had been an unqualified success. In reference to the charge of weakness in continuation schools, Mr. Pease said that further legislation was needed. He had no power to compel Education Authorities, employers of labour, or students. He admitted that there were weaknesses in the educational system in this country, but they were such as could be removed only by legislation.

State Grants.

Mr. Pease dealt in his speech mainly with elementary education. He said that the Board were prepared to give larger grants to secondary schools and to technical institutes as soon as they received the necessary moneys voted by Parliament as foreshadowed by the Chancellor of the Exchequer in his Budget speech. This was said before the declaration of war. The cost of the war will be great, and there will be no hope at present of Lord Haldane's millions. There will therefore be opportunity for more strenuous and more devoted individual work. Of late years money has been freely spent in providing good buildings and equipment, and we have almost grown to believe that these are essential to good education. They are a help, but education is not really a matter of equipment. If more money is not forthcoming, teachers must resolve to do the best with the tools they have, and not to complain if these are not the most perfect conceivable. While teachers continue to devote themselves to their work, as they have done and are doing, education need not suffer. It is the spirit, and not the material, that matters.

Conferences.

The month of August has been full of educational conferences, meetings, and courses for students. One of the most important of these was the Conference at East Runton, organized by the Montessori Society. We are fortunate in being able to offer to our readers a valuable critical account of this written by Prof. Bompas Smith, who was present. The Montessori idea is illuminating, and has aroused a vast mass of enthusiasm that is in itself a stimulus to action. But the Montessorist, imbued with one idea to the exclusion of others, loses the sense of proportion and becomes, in consequence, less effective. We also give an account of the Letchworth Conference organized by the Teachers' Guild and other bodies; and of the meeting at Stratford-on-Avon. The British Association met at Melbourne and Sydney towards the end of last month. We hope to give some account of the Education Section in a later number.

Girls' School Yearbook.

We are glad to welcome the ninth annual issue of the Girls' School Yearbook. This is the official book of reference of the Association of Head Mistresses. The schools included are "public" schools—*i.e.* they are under a governing body. In addition to the lists of schools, staff, and other information, there are valuable chapters on careers open to girls. In this edition particulars as to openings in the larger drapery establishments have been added. In describing careers, the preface informs us, "every care has been taken to ensure accuracy, and above all to avoid over-statement in describing the advantages or disadvantages" of the openings for women-workers. Particulars about the Registration Council are given, and also information about Universities and Training Colleges. Altogether this is an invaluable book of reference that will prove its utility a dozen times a day in the common room of a girls' school.

The Register.

The Register of Teachers is proceeding apace. Over three thousand names have been approved, and the certificates not already sent out are in course of preparation, but will not be issued during the summer holidays, when teachers may be away from their usual addresses. Under the former scheme of registration two years were occupied in enrolling 5,500 teachers; under the present conditions more than two thousand were registered in six months. The acknowledged heads of the various branches of the teaching profession continue to enrol themselves, and

many women teachers, in particular, sent in their names after the address given by Miss Robertson at the meeting of the Association of Head Mistresses in June. The guinea still appears to have a deterrent effect upon some groups of teachers. A guinea is a considerable sum in the budget of most teachers; yet, as this guinea is to be paid once only, and not as an annual subscription, we are inclined to think that teachers might make the effort to pay it, considering the undoubted advantages to themselves and to the profession that will accrue from an authoritative list of all teachers.

Examinations for Secondary Schools.

TOWARDS the middle of July the Board of Education issued a circular letter to correspondents of secondary schools on the subject of proposed examination for secondary schools. The circular was not headed with the word "confidential," but it was clearly not the intention of the Board that the matter should become one of newspaper criticism. The circular fell into the hands of the newspapers, and has been criticized in many directions. Briefly, the Board asked the opinion of governing bodies and education committees upon a scheme of examination drawn up on the lines of the Report of the Consultative Committee. The proposals are: to substitute two examinations (at the age of sixteen and eighteen respectively) for the many that are now held; that in awarding certificates the opinion of teachers and Inspectors should be taken into account; that these examinations should be conducted by Universities under the control of a central council; that they should be binding on State-aided secondary schools and optional on others. The scheme has certain good points; but it is still in its initial stage, and public criticism is premature.

Elementary Schools.

THE Board of Education have been active during the last month in issuing circulars for the guidance of Education Authorities during present conditions. Meals may now be provided at the cost of the ratepayers whether the children are at school or not. The Board have issued full information about procedure and suitable dietary. In some areas schools were opened before the close of the holidays; but this was not always possible, as teachers were scattered and many schools were in the hands of builders or of the military authorities. In some cases secondary schools also have been requisitioned for the use of troops. The Board authorize whatever temporary arrangements can best be made with the approval of the district Inspector, and they suspend all regulations as to size of classrooms, overcrowding, and the like where the emergency arises. Medical opinion recognizes the necessity of holidays for the children, so that the schools that opened in early August must close for a week or two before long. In spite of the absence of competitive examination for the majority of the children in elementary schools, the weaker ones suffer from mental pressure and need recuperative periods.

To Help the Country.

THE willing service shown by all classes of the community, and the eager enthusiasm to give that service, form the brighter aspects of the calamity that has fallen upon us. Boys and girls are included among the workers. In many areas Boy Scouts are giving useful help; and the girls are no less alert in helping the Red Cross organization. If any head mistress of a girls' school, public or private, requires fuller information, it can be had from Miss F. R. Gray, 61 Great Ormond Street, W.C. In our July number the leading article discussed the means that could be taken to enable the younger generation to realize the duty of serving the country. War—though in England we are spared its worst horrors—is a cruel teacher; but it brings at once the urgent call to help and makes us realize our union. The call has come, and nowhere has there been lack of response. Suffering binds us more closely together, and makes us all willing to work for the common good.

The Central Welsh Board.

WE regret to record the death of Prof. Sir Edward Anwyl. He was Chairman of the Central Welsh Board—a body charged, under the Board of Education, with the control of secondary education in Wales. Recently the Central Welsh Board have been compelled to prosecute three members of their staff for fraud; and it is quite possible that the anxiety resulting from this action hastened Sir Edward's end. In December of last year suspicions were aroused that a supposed balance of £2,000 was not to be found. Investigation showed that a series of frauds had been going on for many years, and that the auditors had been totally deceived. A prosecution followed, and three clerks were sentenced to terms of imprisonment. The Board examine and inspect all secondary schools under the Welsh Intermediate Education Act, and in so doing practically control the curriculum of the schools. Their action has been subjected to criticism at the hands of the Welsh Department of the Board of Education, and they have been charged with imposing upon the schools a too rigid academic system of study. The disturbance on the financial side of the Board's work has not in any way affected their educational influence.

Mme Montessori in England.

MME MONTESSORI is expected to arrive in England towards the end of next month, and so far no announcement has reached us that her proposed visit is to be cancelled on account of the war. It will be remembered that Mme Montessori has arranged to lecture to the members of the College of Preceptors on November 3. She will lecture in French. She will also give a course of lessons for students from October 26 to November 21. The course will consist of eight lectures on the theory of the method, and eight hours of practice work: these will be in the evenings. On Saturday mornings there will be eight hours of observation and discussion. The lessons will be given in French; and will be repeated in English and

German to those students who wish to attend the readings in those languages. The fee for the course is twelve guineas, four guineas of which are payable in advance to the Hon. Secretary, Mr. C. A. Bang, 20 Bedford Street, W.C. Applications are asked for not later than September 15.

SUMMARY OF THE MONTH.

Private Schools in a National System.

In the House of Commons, on July 28, Mr. J. King asked the President of the Board of Education whether he had recently received a deputation from the Private Schools Association; if so, what was the object of such a deputation; and whether he could indicate the substance of any reply given to this deputation.

Mr. Pease: I recently received a joint deputation from the College of Preceptors and the Private Schools Association, who desired to lay before me their views with regard to the relation of Private Schools to a National System of Education. The principal subject of discussion was the State Inspection of Private Schools, but as our discussion was in the nature of an informal exchange of views, there is nothing which, at the moment, I can publish with advantage.

Mr. King: Was the attitude of the deputation one of protest or one of congratulation?

Mr. Pease: It was one of inquiry.

The Preparatory Schools Association.

The poll of the Association of Preparatory Schools (says the *Preparatory Schools Review*) on the question of Inspection showed a small but sufficient majority in favour of all three resolutions. The main resolution, affirming that "it is desirable that some system of inspection should be accepted by the head masters of preparatory schools," was carried by 136 to 113, a majority of 23, and each of the other two by a majority of 19. The Board of Education will therefore now be asked to recognize preparatory schools as an integral part of the public-school system; and on July 7 a deputation of public and preparatory-school head masters will go and urge this vital matter upon them. If they are successful, as we earnestly hope they will be, not only will preparatory schools acquire a definite status within the domain of secondary education—a status hitherto denied them on the ground of their age limits, which do not square with those of the official definition of a secondary school—but such of them as invite inspection from the Board will be able to get it free of cost. [It is understood that the Board have accepted the proposals.]

Open-Air Education.

Then I come (said Mr. Pease, in the House of Commons, on July 28) to another subject which I think is one of the utmost importance. It is the provision of adequate open-air school accommodation for the children who are ailing, debilitated, anæmic, and tubercular. We have only in the whole country at the present moment 945 places in open-air schools. My medical advisers tell me that half a million children in this country are in actual need of open-air treatment. At the present moment we have twelve schools for tuberculous children, and grants have been given to these schools, which enable not only the capital expenditure of £90 to be given, or three-fifths of the capital expenditure, but enable the schools to be given £3 per head more for day pupils than we can give to the physically defective schools—that is to say, a grant of £9, and we are able to give to residential schools of this character £20, or £8 more than we give for the physically defective schools. In this way we trust the Education Authorities will respond to the needs and will be encouraged to make the necessary provision for these ailing children.

Progress of Education Bills, Session 1914.

The *School Government Chronicle* gives, under date July 25, the following list of Education Bills:—

Title of Bill.	Brought in by—	Next Stage.
Agricultural Education in Elementary Schools [23]	*Mr. Jesse Collings*	2nd Reading.
Children [142]	*Mr. Goldstone*	2nd Reading.
Children Act (1908) Amendment [46]	*Mr. Alden*	2nd Reading.
Children (Employment and School Attendance) [11] [190]	*Mr. Denman*	As amended by the Standing Committee to be further considered.
Continuation Schools [211]	*Mr. Chiozza Money*	2nd Reading.
Education [79]	*Sir Richard Winfrey*	2nd Reading.
Education (Administrative Provisions) [9]	*Mr. Jowett*	Committed to a Standing Committee, March 27.
Education, Employment, and Maintenance of the Blind (No 2) [308]	*Mr. Burgoyne*	2nd Reading.
Education (Provision of Meals) (Ireland) [163]	*Mr. Brady*	2nd Reading.
*Elementary Education (Defective and Epileptic Children) [43] [154] [316]	*Mr. Joseph Pease*	*Passed*, July 17.
*Finance [251] [333]	*Mr. Chancellor of the Exchequer*	As amended to be considered.
*Intermediate Education (Ireland) [161]	*Mr. Birrell*	Committee.
*Revenue [252]	*Mr. Chancellor of the Exchequer.*	2nd Reading.
University of Sheffield [55]	*Mr. Stuart-Wortley*	*Agreed to by the Lords without Amendment*, July 15.

* Government Bills.

Appointments.

The Executive Committee of the City and Guilds of London Institute have appointed Mr. Alfred J. Margetson, B.Sc. Lond., M.Sc., at present Assistant Professor at the City and Guilds (Engineering) College, Kensington, to the Professorship of Civil and Mechanical Engineering at the Technical College, Finsbury, vacated by Prof. E. G. Coker on his appointment to the Chair at University College.

At Trinity College, Mr. William Lawrence Bragg has been elected to a Fellowship. Mr. Bragg, who was born in March 1890, and was educated at St. Peter's, Adelaide, gained first class honours in the Natural Science Tripos, with distinction in physiology.

Work for Girls.

The President of the Association of Head Mistresses, Miss M. E. Robertson, has sent the following letter to the press:—

At the suggestion of the High Mistress of St. Paul's Girls' School, the Executive Committee of the Association of Head Mistresses is taking steps to enable the girls who will soon return to our schools to serve their country by contributing to the care of the sick and wounded, and of others who will suffer through the war. We have obtained from the British Red Cross Society full instructions as to the supplies most needed. Paper patterns of the clothing required can be obtained from Devonshire House for 1s. 3d. We shall be glad to furnish these to any head mistresses in the United Kingdom whose schools, not being already enrolled in some local organization for the same end, desire to furnish their quota, large or small, to the work. We most cordially invite the help of private schools. We hope that, while all schools thus combining will contribute work, many will contribute money also; the supply of money from those pupils who can spare it will suffice to buy materials to be worked up by girls who have little or no money to give but will gladly devote time and labour to the cause. Inquiries should be addressed to Miss F. R. Gray, at the Office of the Association, 61 Great Ormond Street, London, W.C.

To Boys.

Sir Robert Baden-Powell has issued the following appeal to village lads:—"Boys of Britain, don't go about waving flags because there is war. Any ass can do that. And don't stay idle doing nothing—that is almost worse. Come and do something for your country. She needs your help. The Boy Scouts are now a Service in all parts of the Kingdom. Come and join the nearest troop in your district and do duty like a man."

WHOM SHALL WE TEACH?

By D. R. Harris,
Principal of the Normal College, Bangor.

There is a certain convenience in that definition of primary and secondary education which regards the primary school as the school of childhood and the secondary school as the school of adolescence. To the first belongs the training of the child in those essentials of knowledge which society, as it exists to-day, demands of all. To the second we look for that continuance of education which, carried through the critical years of adolescence, brings the boy or girl to the threshold of college or calling. On this view it might be laid down that primary education proper ends naturally at about the age of twelve and that secondary education of some kind or other should then as naturally take its place. To this view the primary teacher is likely to demur on the ground that established arrangements in this country provide for elementary education up to the age of fourteen or fifteen; while the secondary teacher may, from his point of view, urge that ten and not twelve is the proper age for entering the secondary school. Both objections have reason behind them, but it is not the object of this article to raise a discussion on the question of the age of admission to the secondary school. Our point is that *all* education after twelve is really secondary education rather than primary, whether it is now carried on in a secondary school or not—all education, that is, that is worthy the name. If this view be provisionally conceded it may help us to a further consideration of the question "What shall we teach?" which was discussed in the July issue of *The Educational Times,* since the curriculum must depend upon the pupil.

Such arrangements as have been established for the coordination of primary and secondary education in our country assume that twelve is the age of transfer. At this age those primary-school children who are fit for, and can afford to undertake a course of secondary education leading to a University career or learned profession enter the secondary school proper. But what of the others who at present remain in the elementary school in Standards VI and VII undergoing such courses of instruction as there can be provided until such time as the statutory leaving age or wage-earning opportunities offer an entry into life? It is too readily assumed that these, the rank and file of the elementary schools, are scarcely worth special provision. In point of numbers they represent "the masses" of the coming generation, the great army of workers—and voters. What, then, is the extent of the secondary (or adolescent) education provided for these? In our large towns and centres of population the higher standard education maintained as part of our elementary system is often well organized and equipped. It is, moreover, that part of the work of the primary teacher in which he often finds chiefest satisfaction. Considerable provision has been made for centralizing the higher standard work in special schools, other schools in the area acting as contributory schools for this purpose. In this and other ways Education Authorities have endeavoured to secure for the education of these upper-standard children a maximum of efficiency combined with economy in the working. In our smaller towns and more sparsely populated districts, however, far less satisfactory conditions for the most part obtain. Here the upper standards become so reduced in numbers as to make it impossible for reasons of expense to provide properly for the needs and interests of the children, who consequently display little liking for the school and leave as soon as opportunity offers. It is unfair to argue from the lack of interest in school work shown by children under these conditions that they are irresponsive to educational appeal. That they appear to be so is in large part due to the unsatisfactory nature of the provision made for them. In those places where a real attempt has been made to understand the educational needs of this class of boy and girl the response has, on the whole, been as encouraging as in any other sphere of organized educational effort.

What, then, is the secondary or adolescent education best suited to the needs of those who by reason of their circumstances are to become workers and wage-earners at fourteen or fifteen years of age? Briefly, it may be said to emphasize the child's practical nature by providing handwork of various kinds with reference, if possible, to local industries, courses in practical arithmetic, geography, and civics, hygiene taught in a practical common-sense way, with a good background of literature. This is the merest summary; the point to emphasize is that such a curriculum is an attempt to recognize the nature and the needs of the pupil, with special reference to the cultivation of practical interests.

Turning now to the consideration of those boys and girls who come within the generally accepted definition of secondary-school pupils, we would ask to whom among these do we really address ourselves? Our courses are planned, to begin with, on the assumption that the pupil will remain at school for at least four years. If, therefore, he leaves before completing the course prescribed the school is not to be blamed for any incompleteness or failure in the result. Yet it must be admitted that a large percentage of our secondary-school pupils do, as a matter of fact, leave at the end of three or even two years. In face of this admission can we afford to take the position that, as these are not proper subjects of a secondary-school education, the school is under no responsibility to face the facts and devise such a curriculum as will benefit even those who withdraw before completing the full course? Or is the last word in regard to these to be that the one or two years' drill in the elements of Latin and mathematics, together with what else they may succeed in picking up, constitutes the best mental discipline available? It is not our object to emphasize the claims of these—the relative failures of our system—except in so far as it is necessary to do so in order to determine which of our pupils we really have in view in planning the curriculum.

Looked at historically the institution of the secondary school was intended to provide a training and a culture valuable for leadership and for leisure, and these aims must be of vital importance in any age, however democratic. But the spread of secondary education and the increasing demand for free secondary education bring with them the obligation to reconsider the whole question of curriculum from the point of view of the nation's needs. It is when regarded from this point of view that the conception of the "ladder to the Universities" is so inadequate and disappointing as an expression of the aim of secondary education. And yet "a careful study of the [secondary school] time-table brings out the incontrovertible fact that the curriculum is dominated—I do not say exclusively, but very largely—by the demands of a single class of pupils—those pupils, namely, who are preparing for the matriculation examination of the University. The future graduate must always be an important figure in a secondary school. Let us admit that, boy for boy, he is the most important figure. Yet he is not everybody. He does not represent, I believe, more than 5 per cent. of the whole; and he must not be allowed to dominate the curriculum entirely" (J. C. Smith, "Education in Carnarvonshire," 1911). If there is truth in this criticism—and there is good reason to suppose that it is largely true of secondary education in Wales—it would appear that the pupils we really consider are the small percentage who proceed to the Universities and learned professions.

This may seem an absurd conclusion to draw, though few would be hardy enough to deny that the "promising" pupil—*i.e.* the one who shows signs of obtaining academic distinction—often gets more than his fair share of attention while the others receive correspondingly less. This may possibly be defended on the ground that the chief aim of our system is to discover and train those who have it in them to become leaders of men in their day and generation. Granting the importance of this aspect of the school's function, it still remains to ask whether the academic is the one and only test of capacity. "The whole boy goes to school," and in those cases where a departure from the ordinary academic curriculum has been made—as, for instance, by introduction of handwork and practical pursuits, the discovery of hidden aptitudes and the response to the appeal thus made have often been remarkable. And let it not be thought that these practical interests are less worthy of cultivation than the theoretical subjects of study—a practical interest of some kind is to most of us a necessity for health. Not only so, but there is a question of natural bent or proclivity. It is unprofitable and wasteful of time and energy to force a pupil whose interests are practical to a regime of book-learning. It is an old fallacy to suppose that the only, or the best, discipline is obtained by compulsory exercise upon the distasteful. Children, like their elders, will put forth the greatest effort and will achieve most when working at something in which they are really interested, and an interest in practical pursuits is far more widely possessed than the timetables of our schools and colleges would indicate.

The Report of the Consultative Committee on Practical Work in Secondary Schools, published in 1913, shows how necessary a part of a secondary education is systematic work with the hands, and how repaying in interest and response any departure of the curriculum in this direction is. The findings of the Consultative Committee are an ample confirmation, by appeal to experience, of those more general and theoretical conclusions to which the systematic observation of child nature leads, and one thing seems certain—viz., that in any reconsideration of the curriculum a much larger place should be found for practical work. This is not urged on "vocational" or utilitarian grounds but for purely educational reasons, and because we should try to teach—*i.e.* get at—*all* our pupils and not merely those whose interests are purely theoretical and acquisitive. More than this, experience goes to show that the inclusion of handwork in the curriculum actually increases interest in other and more academic subjects, the confidence gained in the one sphere of activity reacting favourably in other directions. As to the effect on discipline and the growth of a corporate spirit there can be no question. Of course it means that some things hitherto held sacred on account of their traditional place in the curriculum have to go; what these are must be decided by each one of us according to our special circumstances. One thing is, however, clear: if we are going to make an attempt to bring all our pupils within our educational net, and not merely specialize on a select few, there must be liberal provision for the cultivation of practical skill in handwork of one kind or another, as well as the more purely intellectual appeal to which we have so far, for the most part, addressed ourselves in framing the school curriculum.

THE MONTESSORI CONFERENCE.

By H. Bompas Smith,
Professor of Education in the University of Manchester.

The Montessori Conference at East Runton was, as far as I know, the first organized meeting of the supporters of a movement which is rapidly becoming influential. The conference brought together some two hundred and fifty teachers, administrators, and representatives of Universities and training colleges, as well as members of the class officially known as "persons interested in education." There was a large contingent of teachers of young children, but they by no means monopolized the conference. On the contrary, the value of the meetings was largely due to the great variety of experience represented. The originators of the conference wisely included in the program some subjects of special interest to secondary schools and to institutions for remedial education, and this comprehensiveness of outlook was one reason for the large attendance. Another circumstance which made the conference significant was that a large proportion of its members were actively engaged in educational experiments upon the same general lines, though in very various fields. Some members were conducting Montessori schools or classes, others were teachers in Kindergartens or junior classes, who were employing similar but relatively independent methods. Such classes ranged from those with high fees for the children of the comparatively rich to free classes for workhouse children or consumptives. In the same way, there were a few masters and mistresses from secondary schools who were applying the same principles to the teaching of older pupils, and teachers from special schools of many types dealing with particular classes of abnormal children.

The composition of the conference saved it from being either an assemblage of faddists or of worshippers of the letter of the "Montessori Method." There were, indeed, a few representatives of both these classes, but they formed a small minority. On the other hand, I met several critics of Dr. Montessori's doctrines who were by no means convinced that these doctrines are an advance on previous theories. The dominant view was that Montessori methods are one expression of a much wider principle, that they are useful in themselves and rich in valuable suggestions, but that they require amendment in their details and suffer from serious omissions. The conference more and more came to feel that we are witnessing the beginning of a distinctively English movement which will incorporate the valuable elements in Dr. Montessori's methods, but which must develop on relatively independent lines.

The aim of this wider movement proved, as might have been expected, difficult of definition. It was generally described as the introduction of greater freedom in the schools, more room for individual choice and less interference and repression by the teachers. We heard a good deal about the children learning self-control by using the opportunities afforded them of developing their natural powers. We heard also about the teacher's duty of self-effacement. A good deal of what was said upon these subjects appeared to me exaggerated and unreal, and it was clear that the movement was still too young for it to be able to formulate its object with precision. Hence the freedom which we were exhorted to promote remained partly hidden in a mist of words.

There were, however, two helpful attempts at definition which did much to give cohesion to the conference. One attempt was made by the Earl of Lytton, who read the first paper in the absence through illness of Mr. Edmond Holmes. His subject was "The Social Aspect of the Montessori Movement," and he urged that the significance of Montessori methods was due to the principle which underlay them. They were one application of the principle that freedom is natural to the human mind, so that the child's mind can develop rightly only when it is free from repression or dogmatic interference. Freedom means liberty of choice, but such liberty implies a sense of responsibility and a knowledge of the consequences which will follow from the course of action chosen. Our methods of teaching leave room for the child's freedom when we give him the assistance he requires, but leave him independent and avoid all unnecessary restraint. We must let him act in his own way because that way is the best for him, only we must see that his ignorance does not lead him into danger. Here we have the idea of freedom as the law of mental growth demanding absence of restraint and respect for personal proclivities.

Lord Lytton's speech helped to give breadth to the subsequent discussions, but his conception of freedom was rather superficial. A more penetrating discussion of the question

was given us by Prof. Culverwell in his paper on "The Biological Aspect of the Montessori Movement." He distinguished between physiological and psychological freedom. Physiological freedom means that the child can react to any stimulus in the manner determined by its physiological condition without interference from outside. For instance, a child would be physiologically free if its movements were subject to no limitation by its environment. Such a state of things is obviously incapable of realization, but a child has a greater or less degree of physiological freedom according to the larger or smaller variety of changes or movements which its relation to its environment renders possible. Psychological freedom, on the other hand, depends not upon the number or variety of movements open to the child, but upon whether the child is left free to execute the particular movement selected by it. All other movements may be inhibited without depriving the child of the sense of freedom. In infancy and early childhood the importance of physiological freedom is very great. For one thing we cannot be sure what movements the child desires to execute, and therefore we cannot be sure of giving psychological freedom unless we give physiological freedom also. But further, if we stop the child from making some movement natural to it, we cannot control the alternative change which will be effected in the child's organism by the nervous energy which would have found its natural outlet in the movement we prevented. For instance, it is highly probable that stammering has in some cases been due to children having been compelled to write with their right hands when they would naturally have used their left. When, however, we come to the child's relation to the moral world, the position is a different one. Here the child cannot adapt itself to its environment without assistance. This assistance must in the school be given by the teacher who cannot efface himself, though his control will be exerted very largely by the unconscious influence of personality, by a look or a word, and much less frequently by repressive interference. In every system of education the teacher's personality must be of supreme importance.

The avoidance of all unnecessary interference with the child's freedom of movement and of choice was regarded by most speakers as the fundamental principle underlying Montessori's methods. Thus Miss de Lissa claimed that Dr. Montessori shared Froebel's view that the child must develop by following the dictates of its own inner life, and Mme Pujol Ségalas emphasized the large scope given by Dr. Montessori to the child's spontaneous activities.

Two other aspects of freedom were brought out in the discussions, though hardly so fully as might have been desired. In the first place, the negative conception of the absence of repression was to some extent supplemented by the more positive demand that opportunities should be given for the development of the child's whole nature. Thus, for instance, Dr. J. Walker and others criticized Dr. Montessori's methods on the ground that they failed to foster the child's imagination and religious instincts. Secondly, the truth that freedom in the highest sense can be attained only through obedience to the moral law was touched on by one or two speakers, but was left undeveloped.

On the whole, the true nature of freedom had more light thrown upon it by the descriptions of results attained in practice than by the theoretical disquisitions. In addition to the accounts of the work done in Montessori classes and Kindergartens conducted on somewhat similar lines, we had a demonstration by Dr. Yorke Trotter of the success of his method of teaching music. He explained how he treated the acquisition of mechanical skill purely as a means to a higher end and discouraged slavish imitation of the teacher. His object was to cultivate the pupil's instinct for music as a means of expressing his own emotions or of appreciating the meaning of the compositions of great musicians. He therefore allowed the learner a wide freedom of choice in the selection of the music studied, cultivated free composition from the beginning, and led his pupils to read music in much the same way as they would read a poem. The performances of some boys and girls taught upon these lines supplied cogent evidence of the soundness of Dr. Trotter's methods.

The most illuminating address was, however, undoubtedly that of Mr. Homer Lane, the Superintendent of the Little Commonwealth at Batcombe in Dorsetshire. This institution is now well known, and it is impossible in a short space to do justice to Mr. Lane's account of its first year of work. The transformation within so short a time of a number of hardened juvenile delinquents into "citizens" of a little State, in which the standard of conduct is higher than that obtaining in most schools, is one of the most striking educational achievements of our time. The principles followed by Mr. Lane and his helpers are to treat the boys and girls as having a rightful claim to confidence and respect. They are subject to the fewest possible restraints, though there is in the background the possibility of depriving rebels of the rights of citizenship. On one occasion only has this extreme measure been employed, when it at once resulted in the recalcitrant's submission. The fact that these so-called young criminals should have themselves evolved, and should obey, a stringent code of rules and regulations is most instructive. It shows both the force of an appeal to the boys' and girls' capacity for self-government, and also the necessity and value of social control as a means for promoting moral freedom. The true relation between individual freedom and the control exercised by a strong but not repressive social environment has thus been worked out in practice.

The general impression left upon my mind by the conference was that the self-government which was partially introduced into public schools by Dr. Arnold and his successors, and which is one of the characteristics of the Boy Scout movement, is capable of wide extension. We see signs of this extension in many of the newer methods of teaching, in handwork for example, and in the less mechanical form of discipline which is becoming general. Recent advances in psychology, such as those connected with the names of William James, Freud, and Külpe, have given us fresh insight into the mental and moral effects which such an extension of self-government is calculated to produce. The experiments of which we heard seem to show that the introduction of an atmosphere of greater freedom into school life and work will involve important changes in educational methods of which the ultimate results cannot be foreseen. We have need, however, to be on our guard against exaggeration and against any unnecessary break with existing methods which have proved their value. We need not swear allegiance to any single teacher, certainly not to Dr. Montessori. The movement towards greater freedom requires the co-operation of all classes of teachers, of psychologists, of social reformers, and of our leaders in ethics, philosophy, and religion. Given such co-operation there is ground for hoping that a system of education will be gradually evolved which will raise the level of our whole social life.

CONFERENCE ON FURTHER EDUCATION AT LETCHWORTH.

By Our Special Representative.

Under the presidency of the Marquis of Salisbury a committee composed of members of the Teachers' Guild of Great Britain and Ireland, the Workers' Educational Association, and local members organized a notable conference on Further Education at Pixmore Hall, Letchworth. Delegates were sent from various educational associations, education committees, technical schools and schools of art, and teachers' guilds and associations, and the interest in the meetings was maintained from the opening on Saturday, July 25, until the close on Friday, the 31st.

The Marquis of Salisbury opened the conference. He declined to express any opinion as to whether the extension of education after the age of fourteen should be compulsory or not, but, having regard to the low wages of many of the

workers, he urged that the right of the parent to the aid afforded by their children to the family exchequer must be respected. The best hope, he thought, lay in obtaining the voluntary co-operation of employers, and instanced the work of the Boy Scout movement as an example of efficiency under voluntary methods.

Mr. Aneurin Williams, M.P., Mr. Ebenezer Howard, J.P., and the Chairman of the Parish Council welcomed the delegates.

Monday's meetings were concerned with Further Education in England and in London. Mr. J. H. Reynolds, M.A. (late Director, Manchester Technical School), advocated the inhibition of child labour under the age of thirteen in order to assure healthy life for education after that age, within ordinary working hours, and Mr. C. K. Ogden, B.A. (joint author of "The Problem of the Continuation School"), advocated a four and a-half days' working week, so that the rest could be spent under educational influences. Eight hours should be so spent and given to practical or laboratory work, theoretical instruction bearing upon such work, drawing, mathematics, composition, and general social knowledge. An evening school system was impossible. The school he advocated should be organized for and by members of a given trade, with the support of the municipality and the State. The voluntary system had completely failed.

Mr. J. C. Smail (Organizer of Trade Schools, L.C.C.) expected little progress on voluntary lines. Any scheme of further education should be prefaced by the restriction of juvenile hours of labour. A Royal Commission of Juvenile Labour was wanted to formulate a national policy in regard to work, hours, training, and education; in short, a sound and consistent national policy on the broadest lines, for which half a million per annum should be reserved.

Miss F. H. Durham (Organizer of Women's Technical Classes, L.C.C.) also urged a reduction of working hours and a compulsory system; Mr. Shadrach Hicks (Principal of Shoreditch Technical Institute) concurred with this. Such education must be carried on up to eighteen years of age, and in the daytime.

Further Education in Scotland was dilated upon on Tuesday by Mr. D. McNally (Head of Continuation Work, Edinburgh School Board) and by Mr. J. Clark (Clerk to Glasgow School Board). The former, whilst of opinion that compulsion must come, would not rush into it, and Mr. Clark showed that, although compulsory powers were given to Scotland, the average employer not being ripe for providing educational facilities for these young workers, only one large Board—that of Glasgow—had applied those powers. But he emphasized the necessity for such powers; he could not see how, otherwise, their object could be attained or the nation enabled to compete with other nations.

Miss Winifred Jevons spoke on Further Education in America.

Further Education in Germany was spoken to on Wednesday by Dr. Kobelt (Organizer of Rural Continuation Schools in Germany). Intelligence, machinery, and money should not, he urged, be our idolized rulers, but our servants to help us to educate freer and more capable descendants, and the exchange between men of science and theory should be followed by one between the pedagogues of different nations engaged in active practical work for the good of European culture. Mr. T. R. Hawes, M.A. (Head Master, Castleford Secondary School), showed how successful the compulsory system had been in Altona. Hamburg, her neighbour, had in consequence, adopted it; why not England ?

Mr. J. Willis Bund (Chairman of Worcester Education Committee), speaking on Non-Vocational Education, affirmed that a general and wide education for a child was preferable to a special training. The elementary course should end at ten; from then to fifteen compulsory education at a secondary school was required. After the first year or so some idea would be obtained as to what the child was fitted for, upon which its after teaching could be built up.

Mr. J. B. Johnson (Director of Education, Ealing) said technical skill was not everything, and the complete life was not possible unless the educational environment during adolescence fostered culture, sweetness, and light. Miss Honey (Secretary of the Women's Department, W.E.A.) pleaded for liberty for responsible teachers to draw up their own curriculum. There was too much tendency to give the children not the classes they want, but such classes as grown-up people consider they ought to have. Mr. W. R. Rae, of the Education Committee of the Co-operative Union, concurred. Doubly capable young citizens, with developed personalities, were what we ought to develop. The subordination of the individual and the standardization of brains attempted in the German specialized schools was unnatural.

Vocational Education occupied the attention of the delegates on Thursday. Mr. W. P. Donald, LL.B. (Town Clerk of Barnsley), contended that no education was more than a makeshift which left the further education of our boys and girls until after a day's exhausting work. Good citizens, no less than fully qualified industrial units, should be its aim. It was time we got away from our medieval conception of education and remembered that the subjects often regarded as cultural were originally included in the curriculum of our educational institutions because of their vocational value. Mr. Trevor H. Walsh, M.A. (Assistant Secretary Kent Higher Education Committee), pleaded for a higher standard of further education for our village boys, the lack of which was largely responsible for the narrow outlook and poor imagination of so many of our rural population. Mr. W. Howard Hazell (Director of Hazell, Watson, & Viney) and Mr. R. W. Ferguson, M.A. (Education Organizer at Bournville Works) also spoke.

On Friday morning the Teaching of Domestic Subjects was the subject of a paper by Miss Kempson (Head of Domestic Science Department, South-Western Polytechnic). Uniformity of treatment was, she affirmed, a grave mistake in any branch of education at its present stage, and in no branch was it adaptable to local or individual needs more necessary than in domestic subjects. Modern education was too prone to minimize the importance of domestic work and to regard it as something derogatory, and literary training was no less a necessity in this sphere than any other. Mrs. McKillop's paper pleaded for a large constructive scheme of instruction for domestic service, five or ten years ahead of developments. The entire status of servants must be altered, and they must not practise with old-fashioned implements and subject to old traditions.

Canon J. H. B. Masterman, M.A. (President of the Teachers' Guild), drew a large audience to his introduction of the subject, the Teaching of Civics. Citizenship could be taught as part of our system of national education, was his assertion, but not on the lines of the dreary manuals we were acquainted with. Little, however, could be done with the present crowded elementary-school curriculum beyond an intelligent preparation for citizenship by showing how the present had grown out of the past. His dream was that when the child left school at fifteen he or she should attend classes on one afternoon a week for two years, one year of which, in the case of the girls, should be given to domestic subjects (and why not the boy also?) and the other to citizenship. The conversational method of instruction by the right teacher was the most effective. The answer to the question "What is democracy?" would be the best starting-point, leading through the civilizations of the past and giving the history and development of Parliamentary institutions, and our party system. Then, coming to the present and to local life, such life and its government and expenditure could be treated in a worthy and dignified way which would smite the cynic to the dust. He would have a monthly enrolment of citizens, qualified by such tuition, as a civic function.

The week's conference closed on Friday afternoon with two papers by Miss K. L. Johnston (Maria Grey Training College) and Prof. Foster Watson (late Professor of Education, Aberystwyth) on the Provision and Training of Teachers for Further Education. Miss Johnston's ideas embodied a training college with numbers regulated by the opportunities for practical work in the neighbourhood and the capacity of

the staff, a demonstration school at which the staff of the college would be at liberty to conduct courses on which discussion and debate could be based, and, last and most important, the continued and extended co-operation of schools. Prof. Foster Watson lamented the half-hearted support given by parents and employers to further education. There could be no satisfactory education until it was compulsory, but they must not make the mistake of having it before they had the necessary equipment and efficiency.

The conference was varied by excursions to Cambridge and Hatfield House, a dramatic performance, concerts, and a masque and pageant.

THE CONFERENCE OF TEACHERS OF ENGLISH.

STRATFORD-ON-AVON, AUGUST 1—15.

By S. P. B. Mais.

There were probably many of us who had looked forward to this first summer meeting since Christmas. But to damp our enthusiasm, the two preliminary days were so wet that Stratford—dry cheery Stratford—became for once forlorn and dismal.

On Monday, with our minds running on the likelihood of England engaging in a war of gigantic proportions, we found it hard at first to concentrate our thoughts on our subject. Sir Sidney Lee took the chair and opened the Conference in a speech pregnant with matter. He told us that in Shakespeare's time a schoolmaster in Leicestershire, one John Brinsley, had lamented that too little care was taken "in respect to train up scholars so as they be able to express their minds purely and readily in our own tongue and to increase in the practice of it." He also quoted further from Brinsley, that "the purity and elegance of our own language is to be esteemed a chief part of the honour of our nation, which we all ought to advance as much as in us lieth." Sir Sidney Lee suggested that this would make an admirable motto for the conference.

Mr. J. H. Fowler, of Clifton College, who has done so much to popularize the teaching of English in public schools, read a paper on "The Study of Shakespeare in Schools." He emphasized the unhappy state of a country that was unable to appreciate her greatest genius. To remedy this, he was convinced that the teacher must no longer stand between Shakespeare and the child; but must smooth away just those difficulties that prevent great literature from making its own way to the hearts of children. He urged that a play should always be read in its entirety before any detailed study is attempted. Miss McCroben said that all these questions invariably resolved themselves into one—the personality of the teacher. In order to attain any result worthy of the name, the Shakespearean tutor must be a fine reader, imbued with the spirit of the Renaissance, and well informed in all periods of the drama. Every school, she insisted, ought to be provided with the best Shakespearean criticism. Dr. Rouse, who opened the discussion, denounced the examination system and the Clarendon Press edition of the plays.

On Tuesday, Sir Edward Cooke presided. Prof. S. H. Clark, of the University of Chicago, gave a lecture on "The Music of Poetry," and engrossed the attention of the audience. He opened with a comparison between poetry and prose, and pointed out that though identical in many ways, there was, in one particular especially, a vast difference: poetry possessed a music which prose lacked. He criticized "musicians who brought their own cribbed, cabined, and confined art to bear upon, and invariably to confuse, the natural music of the poet." A poet, he said, could not put all his heart into words and so he made use of music to arouse imagination and emotion. First of all in all poetry there must be melody, a melody that comes from the author's placement of his emphatic syllables. He illustrated this by a quotation from "Macbeth," and he denounced the stage method of depicting the witches as common scolds, thereby missing the melodic climax. Secondly, there must be "tone colour" or "instrumentation." To illustrate this he quoted Arnold's "The moonlit solitude mild of the midmost ocean," a line, he said, which did not imitate peace; it brought peace with its very sound. Thirdly, there must be rhythm: omit rhythm, and poetry was gone, even though the poetic remained.

Mr. Lascelles Abercrombie then read a paper on "Poetry, the Education of Consciousness." Another poet, Mr. John Drinkwater, followed with "The Value of Poetry in Education." He decried the present attitude towards art and bitterly described how people were told to seek beauty, but were never shown what beauty was. He advocated sending companies round the villages to play Shakespeare as one means of raising the general level of the public tone. In less than a generation, he said, the people would desire decent conditions, and, as a result of that desire, would have them. Education, he said, has been, up to now, all wrong. The one faculty in humanity which would train moral judgments had never been stirred. The alert and provocative spirit of poetry was needed. Had this only been fostered in the past, the hideous and blasphemous tragedy that had fallen on Europe to-day would have been impossible.

On Wednesday, with Mr. William Archer in the chair, Miss Elsie Fogerty read an interesting paper on "Co-ordinative Speech Training." Prof. Jones, speaking on "The Use of Phonetics," made an able appeal for the general introduction of a phonetic system. Miss Laura Smithson implored those who taught voice production never to let children recite together, never to select lengthy pieces for recitation, never to try to teach expression through the medium of a piece which did not appeal to the child's mind, and never to allow children to memorize words, parrot-like, line by line, regardless of the thought and feeling underlying the words. More important than the negative side of her remarks was the valuable suggestion that children should be encouraged to tell in their own words the story of the poem they were about to learn. This is her method: she reads a poem; the class go off into an adjoining room and come out one by one to tell the story, each in his or her own way.

On Thursday, Dr. Rouse presided, and Prof. J. M. Thomas, of Minnesota, read a paper on "Oral Composition." He suggested that the great problem in teaching composition was to keep before the students the illusion of reality, and it was here that oral composition was useful. He advocated allowing pupils to speak from notes. The more timid might even be permitted to speak from manuscript. To increase the vocabulary he recommended the habit of committing to memory not only passages of poetry but of prose also. To remedy awkwardness he said that diagrams and tables of figures on a blackboard might be used by the young speaker. To combat slovenliness of diction he recommended an insistence on an intelligible reading of literature. It might be well to take to heart Mr. Shaw's injunction in "Pygmalion," "You are a human being with the soul of a human being. You have been endowed with the divine gift of articulation. Stop that infernal sniffing." Mr. Cloudesley Brereton opened the discussion.

On Friday, with Miss H. M. White in the chair, Miss Amice Macdonell read a paper on "Acting in Schools." She drew attention to the imitative faculty latent in children, and told of her personal experiences with youthful players.

On Saturday, Mr. F. R. Benson presided, and Mr. Rundle Milliken read a paper on "Shakespeare's Historical Plays in Schools."

The American Section of the Conference handed in an appreciation of the week's meetings on Saturday, and expressed a hope that the conference might continue yearly.

The second week started unfortunately, owing to the absence of Prof. Trench. Sir Frederic Wedman, however, presided on Monday, and Mr. Justin Macarthy and Miss Pagan read interesting papers on "The Interpretation of Drama."

Mr. Macarthy presided on Tuesday, in the absence of the Right Hon. D. H. Madden, and Lady Isabel Margesson read a paper on "The Drama of Childhood," in which she laid stress on the necessity of freedom for the child; he must be given the chance to make heaps of mistakes, for only by so doing will he win out in the end. She made some very valuable comments on the weakness of the abstract in children and the necessity of beginning with the concrete. She then quoted from Ebenezer Cooke, who maintained that the infant could not develop a keen eye and fine taste unless it began on the healthy basis of being allowed to be a savage.

On Wednesday, Prof. W. F. Trench, of Dublin, presided, and Mr. Lascelles Abercrombie read a paper on "Word Values." He was followed by Miss C. L. Thomson on "The Appreciation of Poetry." She said that it was a reproach on the teacher that there was so little real appreciation of poetry. It ought to be part of the qualification of every teacher of English that he or she read much for pleasure, wrote original matter, and possessed a good voice. The aim of the teacher should be not to appear to teach, but to see the faculties of the pupils in motion. If teachers showed an enthusiam for fine poetry, there would soon grow up a race of Englishmen able and keen to appreciate the noblest aims of existence.

I have left myself no room to mention the rest of the conference, but it will at once be seen from the very titles of the papers read how immensely instructive and varied were the points of view put forward. We may go back to our respective schools next term convinced that the teaching of English is at any rate in enthusiastic hands, and that the pioneers of to-day will see to it that some

of the faults which everyone agrees now exist shall by next August be partially, if not entirely, eliminated. At any rate, we now know that the study of our native tongue is at last being taken seriously, which is by far the healthiest sign in education to-day. The success of the meeting was largely due to Miss Macardle's indefatigable work.

PRIZE COMPETITION.

Prizes are offered each month for the best replies to the subject set. Competitors may, if they wish, adopt a *nom de guerre*, but the name and address of winners will be published. Competitions, written on one side of the paper only, should be addressed to the Editor of *The Educational Times*, 6 Claremont Gardens, Surbiton, and should reach him not later than the 15th of the month. As a rule competitions should be quite short, from 100 to 500 words.

The first prize will consist of half a guinea; the second prize of a year's free subscription to *The Educational Times*. It is within the discretion of the Editor to award more than one first prize, or more than one second prize. Cheques are paid on or about the quarter-day following publication.

Subject for August.

The most appropriate quotation (in either prose or verse) to head an essay on "The Ideal Teacher."

One candidate frankly adopts Sir Walter Scott's plan of making a quotation when he could not find one suitable:

To time be true,
To duty be sincere,
Blending wisdom with character.

This is one of the few cases in literary work when originality is a disqualification. A pessimist, who in a previous Competition gave us a depressing contribution, returns to the charge with: "An admirable Crichton on £120 a year." He gives no reference, and we rather suspect that we have here another example of the Scott method, though we seem to remember similar sarcastic remarks in educational journals when dealing with the big demands made on teachers and the small emoluments offered in return. To this sarcastic school belongs the suggested quotation: "Not one but all the world's epitome." Goldsmith's village schoolmaster with his awe-inspiring headful of knowledge has been suggested, and, of course, Chaucer's "gladly wolde he lerne and gladly teche," has not been neglected. One competitor gives from "In Memoriam" Tennyson's fine tribute to the scholar Lushington

full of power,
As gentle, liberal-minded, great,
Consistent; wearing all that weight
Of learning, lightly like a flower.

But this emphasizes the side of learning : the stress should be laid rather on the teaching aspect. This is recognized by the competitor who gives Queen Elizabeth's words: "I have desired to have the obedience of my subjects by love and not by compulsion." Another falls back upon Holy Writ and gives us the brief but effective motto from I Peter v, 3: "Ensamples to the flock," and adds an alternative quotation, this time from Rousseau: "Vivre est le métier que je lui veux apprendre."

On general principles there is much to be said for the quotation made by one competitor from Mrs. Browning: "We plant the great Hereafter in the Now," though it is not specially applicable to the Ideal Teacher. Unfortunately the bad teacher is as busily engaged as his professional betters in planting the Hereafter. More on the lines of mere teaching is the quotation submitted from Dryden's "The Cock and the Fox":

Pleasure with instruction should be joined
So take the corn, and leave the chaff behind.

There are the usual quotations that sound well in themselves, but that are not specially applicable to the subject suggested. For example, the competitor who submits Plautus' "Moderation in all things is the best of rulers," might as well have chosen this for any essay dealing with life.

A certain number of competitors have been misled by the word "ideal" into giving a quotation suitable for an essay on "The Teacher's Ideal," rather than "The Ideal Teacher." This is markedly the case with the competitor who submits a long and interesting quotation from an address by Bishop Westcott to the Christian Social Union at Bristol in December 1896.

Naturally, we turn to the nearest realization of the Englishman's ideal of the Schoolmaster, so we are not surprised to find a competitor quoting from "Rugby Chapel":

Still thou upraisest with zeal
The humble good from the ground,
Sternly repressest the bad.
Still like a trumpet dost rouse
Those who with half-open eyes
Tread the borderland dim
'Twixt vice and virtue; reviv'st,
Succourest; this was thy work,
This was thy life upon earth.

It is a little surprising that none of the competitors has hit upon Thomas Fuller's "Good Schoolmaster." Shenstone, Kirke White, Robert Buchanan have all written quotable matter bearing on our subject.

A prize of half a guinea is awarded to Miss M. McCombie, Training College, Darlington.

And a second prize to Miss Vera K. Edwards, Selborne, Leicester Road, New Barnet, N.

Subject for September.

A criticism of not more than 600 words on the advice to students: "If cramming means the acquiring of facts, then cram, cram!"

CURRENT EVENTS.

The College of Preceptors has, during the past month, been in the hands of painters, decorators, and electric-lighting engineers. Members will be delighted with the improved effects.

The list of College meetings will be found on the first page. Members will be informed if it is necessary to cancel any of these.

Mr. Pease has, at the request of the Prime Minister, undertaken the control of the Central Advisory Committee for the Prevention and Relief of Distress, and the distribution of the Prince of Wales's Fund.

Mr. Trevelyan, having conscientious objections to the declaration of war against Germany, has resigned his office of Parliamentary Secretary to the Board of Education. Dr. Addison has been appointed to succeed him.

At the cost of £1,068 the National Union of Teachers have enabled 134 Russian teachers to travel home via Newcastle, Bergen, and Stockholm. These teachers were stranded in London, their return tickets via France and Germany being useless.

We have received a program of an International Conference on Hygiene, to be held in Brussels in 1915. We can only hope that circumstances will allow the holding of the conference.

Prince John, says the *Manchester Guardian*, the youngest son of the King and Queen, who reached the age of nine on the 12th ult., is to join his brother, Prince George, at St. Peter's Court School, near Broadstairs, in Kent, after the summer vacation. As at present arranged, the three younger sons of their Majesties are to be educated at Eton, where Prince Henry is already established.

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SANE SEX TEACHING.

V.—TRAINING THE INSTRUCTORS.*

By NORA H. MARCH, B.Sc., M.R.San.I.

FROM the previous articles in this series, it will be seen that the task of sex enlightenment does not fall within the province of one person only, nor is it a task which may be accomplished in a short space of time. Certain parts of sex education, particularly those of the most intimate personal appeal, fall to the share of the mother or father, as the case may be. To the school may be allotted the task of supplementing and preparing the way for instruction given at home; to the family doctor or school doctor some points, particularly in connexion with the teaching of boys, it is held, should be allocated. It is, of course, impossible definitely to *organize* sex-teaching; the tremendous range of variation of temperament, intelligence, curiosity, and experience of children preclude this. And because it is impossible to organize sex-teaching, all of those who may be called upon to take part in it should be prepared to deal with any part of it, in case there be a psychological moment to seize.

As I am asked to deal with the question of Training the Instructors, my remarks will be confined to the training of those instructors who are, speaking generally, not yet qualified and have had few, if any, opportunities to qualify themselves to deal with sex teaching: I refer to the parent and the teacher. It is generally recognized that the bond of confidence between parent and child should remain undisturbed when questions bearing on sex come forward, that parents should be ready and willing to strengthen that bond by giving simple, direct, truthful answers to childish inquiries, and to establish such a confidence and dignity of relationship between themselves and their children, and such an attitude towards the subject of sex, that their children will go only to them for further information on the intimate personal details involved. One must recognize, though, that the great majority of parents are at present unfitted to do this: their own experience often, their own attitude, their

* Previous articles in this Series have appeared in the April, May, June, and August numbers.

frequent shrinking from the subject because they assume that a child's simple questions are of deep sexual import, their own lack of knowledge of how to speak to children on these matters, all tend to make the task a difficult one for the parent to approach. Many would do it if they knew how to do it—just what language to use, just how to approach it.

Then, for a thorough carrying-out of an ideal of sex education, it is essential that parents should understand how far the home training may react upon the character, helping their boys and girls to lead a chaste, self-controlled life. Mothers should know how to speak to their daughters, to warn them of the changes which occur at puberty, and to give them advice on personal care and hygiene, to tell them what these changes mean, the relation they bear to the responsibilities of womanhood. Boys, too, as has been shown in an earlier article in this series, stand in need of advice and understanding. They should be informed not only of phenomena in the male sex but those in the female also, so that a more honourable, more sympathetic, and less selfish attitude towards women may develop. And best that this knowledge should be given to them by their parents. Sometimes it is the mother to whom the boy goes to in his quest, sometimes the father. And to those parents whom I know to have had this frankness with their children, not one has expressed regret at the step. Yet these are things that parents themselves so often do not know, and it is a difficult matter to obtain and direct the attention of parents to them.

One of the best ways in which the parents may be approached is through the school. The Principal may invite parents—mother or fathers, or both—to the school to a meeting, and in a tactful address given by himself—if he is thoroughly prepared to deal with his subject—or by some well qualified person, urge upon the parents the necessity for such teaching being given, showing them also how and when to give it. Moreover, in this address, it may be shown how the school is able and willing to help; how much may be done by a skilful use of the subjects taught at school to prepare the way. The first opportunities may have been allowed to pass; mothers may not have answered the early questions. But they may be told of other opportunities which will offer themselves, when much of the lost ground may be recovered. It has happened to my knowledge, that when such a meeting has been successfully carried through, a desire for more thorough instruction has been expressed, and further meetings have been arranged. There is now a certain amount of literature published dealing with various aspects of sex teaching, some of which may, with great advantage, be recommended to parents to read. Frequently the Principal may assist parents, advising them individually on difficulties which may arise, showing them how to inform their children on the facts of life, how to prepare them for the advent of pubertal changes. (Some Principals of schools refuse to accept pupils above nine or ten years of age without this preparation.)

It is through the school that the greatest number of parents may be reached; but other organizations may make, and have made, similar attempts to interest and instruct the parents—the Boy Scouts, Girls' Guilds, the many Women's Guilds and Associations, the Churches and Sunday schools, and the various societies working along lines of social reform. And there has been, so far as I can speak from personal knowledge of such meetings, an interested and sympathetic response. One meeting was arranged for the fathers of a local association of Boy Scouts, and addressed by a doctor. This was followed by a request that a similar address be arranged for their wives. This meeting was attended by about two hundred mothers. It is not my custom to invite discussion at such meetings, but to give opportunity of asking questions less publicly after the address is over. In such ways does interest spread. But one must admit that those parents who do respond to such invitations are, on the whole, those who are willing and ready to be enlightened and anxious to improve matters, while the indifferent and antagonistic who do not respond are the very ones who need most to be impressed.

Individual parents may, of course, often receive help and instruction from qualified advisers in their circle of acquaintances. One would specially draw attention to the many opportunities which doctors and nurses have of coming into intimate personal confidence with their patients who may be parents, or with the parents of their child patients. The doctor who will spare the time, the nurse (such work should form part of a nurse's training) who knows how to talk to parents in regard to sex enlightenment and supervision of children, have invaluable opportunity of sowing seed.

Parents of all classes may be reached, with more or less success, in some of the ways indicated; certain simplifying of information being, of course, necessary in dealing with the less educated. The ignorant, often coarse and degraded parents of the children of the lowest classes, are difficult to reach and difficult to teach, and one is bound to think that the welfare of their children, so far as instruction in sex matters is concerned, will be safest in other hands. Such children come little within the influence of any social or religious organizations: the great hope for their uplift, in these days of compulsory education, lies in the school.

And so we come to the question of training of teachers. Instruction of the parents may be regarded as fitting them to deal with the more purely personal aspect of sex teaching, to recognize and in some measure cope with sex malpractice, to safeguard their children against the pitfalls of social experience, to aid them in establishing self-control, to inspire them towards an ideal code of honour involving premarital chastity, an ideal of marriage, and of parenthood. The training of the teacher should proceed along lines parallel to this, but broader. The teacher needs greater detail, more definiteness of information.

The work done in the school should give solidarity to sex teaching by placing the racial organs and functions in their recognized place in biology, preventing undue isolation of sex, inhibiting undue emphasis. Some parents and other adults who are anxious to lead aright have not a definite store of facts to guide them; and their tendency is, frequently, to talk of the sex life in a strain more or less sentimental or in a strain which the healthy minded boy or girl will label as "preaching propriety." Definite teaching on the biology of sex will counteract these.

The specialist in biology is to be found in most of the secondary and high schools, but every teacher's training should include a course of elementary biology or Nature study. This work, dealing with plant and animal life, should be so arranged that, in the general study of biological types, it incorporates but not over-emphasizes the reproductive functions and the processes involved in the carrying-on of the species. A suitable vocabulary of simple, dignified terms, simple phrases expressing phenomena, the study and rearing of suitable types, the art of passing from simple animals to the higher forms by imperceptible steps, an acquaintance with the elementary facts of heredity, are all obtainable in this work.

The limits of space at my command, however, do not allow me to do more than to indicate the possibilities of this work in elementary Nature study. It should, for the benefit of the student in training, proceed along further lines: an acquaintance with the egg-cell and the sperm, with the process of fertilization, are easily practicable, as is also a study of some of the simpler embryological processes.

An elementary outline of the physiology of human reproduction and birth should find its place in the ordinary course in physiology and hygiene, the organs and their functions receiving just the same treatment as, for example, is given to those of respiration and circulation, the biological work forming a helpful approach. Some consideration of the factors influencing development — *i.e.* heredity, environment, function—may well precede the study of the development of the child, which study should deal with the physiological and psychological aspects of the sexual life, forming a rational basis for supervision of child life. In this work the special weaknesses and difficulties characteristic of the de-

velopmental stages may be given; this will lead to instruction in the care and management of children, particularly (having regard to the bearing of these articles) in the recognition of, and preventive measures against, sex malpractice; the hygiene of puberty, the guidance of adolescence, will also come into this part of the syllabus.

An elementary acquaintance with the psychology of sex will naturally find a place in this part of the hygiene, while information, not too detailed, not at all sensational, on the prevalence, means of spread, the results of venereal disease should be dealt with as one aspect of social hygiene—*i.e.* they should receive the same matter-of-fact consideration as is given to the other communicable diseases.

In order that teachers should be thoroughly prepared for the work that may lie before them, they must be led to understand the social conditions and the environment of their pupils, and the social experience which may befall them. This is particularly important in connexion with the training of teachers for the elementary schools, where the children in so many cases come from a most antagonistic environment.

The moral aspect of sex teaching, sex ethics, the eugenic aspect, must each find an important place in the scheme of work, which should also include some suggestions for approaching and helping parents. It must be remembered that the ordinary teachers in training are young — twenty years of age and under — and that, though the period of training is the time when they may receive instruction in sex pedagogy, and when they may be greatly influenced towards developing the personal fitness of character necessary for success in regard to this teaching, one would hope that they may have a period of "rest" after finishing training, gaining experience, maturing, allowing things to pass into correct perspective, before they may be called upon by circumstance to take any great part in this work.

I would like to make it quite clear that—although, for the sake of brevity, I have expressed myself in somewhat technical terms—the aim of this work outlined is *not* to produce "sex specialists"; it is simply to give teachers a sensible grasp of those aspects of child life of which they are usually ignorant; to enable them to make the most of their school subjects as an aid to this step in social reform; to help them, should they be called upon, to approach parents; and it is hoped that they would derive some personal benefit from the information they gain. It is not necessary, therefore, that the work should be on any but simple lines, nor need it be expressed in highly technical terms: the simpler technical terms, though, are advisable—indeed, necessary—both as an aid in preserving a normal attitude, and as a means of supplying a much-needed vocabulary.

Teachers of experience also, speaking generally, stand in need of the same training: they are unlikely to be able to return to college for it. Courses of lectures are, however, from time to time arranged, and the great interest which many teachers take in this question of social reform is manifested by the large attendance at such lectures—a large attendance, not only of teachers, but of social and rescue workers, who find such instruction vastly helpful in meeting many of the demands their labours for social uplift entail.

CAREERS FOR GIRLS.*

V.—A COMPARISON OF OPPORTUNITY IN VARIOUS COUNTRIES.

By Miss C. C. Lyon.

There is probably no nation in the world to-day quite untouched by the woman's movement. Even in China, Turkey, and Persia, women are raising their modest claim to some small measure of liberty, and in almost every civilized country their desire for freedom of scope and opportunity is rapidly extending.

It was not very long ago that a sharp line of distinction was drawn by every nation between the professional careers open to men and to women. The woman might choose between teaching, writing, nursing, and acting. A career as lawyer, doctor, judge, civil servant, religious minister, or politician was solely reserved for men. Steadily, and for the most part quietly, the process of obliterating this line has gone forward through the lifetime of ourselves and our parents, until to-day, there are communities of the highest civilization and intelligence where such distinctions are no longer recognized in theory and are fast disappearing in practice.

The ideal of a "career open to talent"—even to the talent of women—and closed only to inefficiency is most nearly attained to-day in America, Australia, New Zealand, and the Scandinavian countries. Among nations gradually advancing towards that ideal, but still far from attaining it, are France, the Netherlands, and Canada. More backward, but slowly advancing, are Great Britain, Germany, Russia, Italy, South Africa, and perhaps others.

It is, of course, quite impossible in the space of a single article to examine adequately the professional position of women in each of these groups. I propose, however, to consider briefly the careers open to women in the more "advanced" countries, to indicate in what manner these women appear to be reacting to their new-found freedom, and to touch upon the effect of the restrictions imposed, or rather inherited, in the older countries.

In certain States of America there is no career from which women are legally or socially debarred. The choice is freely given into their own hands, and as a result we find them successfully engaged in every profession. The conditions in the teaching and nursing professions are favourable to women. For instance, in New York, Wyoming, and Utah, Acts are in force providing that men and women teachers shall receive equal pay for equal work. In Oregon there is an Act protecting women teachers as to terms of employment and discharge, and most of the American States enforce the State registration of nurses. In regard to professions less familiar to women, there appear to be a larger number of women in America than in any other country working as ministers of religion in various denominations. The question of the lawfulness of a woman acting in such a capacity has been raised from time to time in one country or another. In Holland, for instance, it was decided a year ago by the authorities that a clergyman's duties are too fatiguing for a woman; and in Norway, while a woman is allowed to lecture in theology to candidates of ordination, she must not herself be ordained in the Established (Lutheran) Church. However, it is with America we are now concerned. While the interest taken by women in the work of the ministry may hardly surprise those who reflect upon the relative proportion of the sexes represented in an average congregation, the decisive inclination shown by American women for the legal professions is, perhaps, less in keeping with preconceived ideas of their sex. Yet here are the facts: In forty-five out of forty-eight States of the Union women practise law. The States refusing women are Virginia, Arkansas, and Georgia. There are over a thousand women lawyers in the whole United States; while the total number of those engaged in the business of law, such as law clerks, &c., has been recently estimated at twenty thousand. Nor do these figures represent the full number of women who might wish to enter the profession, since women in unenfranchised States suffer under considerable disability. Judges (who must be men outside of equal Suffrage States) have within their gifts refereeships and receiverships. These are nuturally bestowed upon voters upon whom office depends. "Many women," says Miss Raye Smith (Professor in Woman's Law Class, New York University, and editor of *Women's Lawyer's Journal*) are making a simple plain living in legal practice; for more recognition, they await the coming of equal suffrage."

"The highest legal position—that of Judge—" writes the same authority, "has been bestowed upon a woman in Chicago and upon women in Western Suffrage States." It

* For previous articles in this series see May, June, July, and August numbers.

is, of course, in the judicial work of Courts for delinquent children and girls that the need of women judges has been felt, and is to some extent supplied. But Miss Raye Smith is of opinion that "equal suffrage alone will give the woman lawyer the status which may result in her appointment to positions where she is most needed, upon the bench of the Juvenile Courts and the Women's Courts." The recent appointment of Dr. Elizabeth Davis as Commissioner of the New York Department of Correction is not without interest. She has under her care 5,500 prisoners in nine city prisons and institutions. Her salary is 7,500 dollars, and she was chosen on account of her successful work in a similar, though smaller, appointment.

In certain States of America, also, a political career is open to women. In what manner this has affected their general outlook upon public affairs has been very strikingly illustrated by the action of the Colorado women in the recent mining troubles. Senator Ring Robinson, of Colorado, is the only woman member of an Upper House of Parliament in any country. It was she who called upon the enfranchised women of the State to come to the rescue. It will be remembered how these women marched to the Capitol when the fight between mine owners and strikers had reached the point of civil war, and secured, by sheer persistency, the intervention of Federal troops.

In Australia and New Zealand the professional opportunities of women are remarkably good. Not only are all professions open to them (with the exception of a Parliamentary career in New Zealand and parts of Australia) but their sex disabilities have almost disappeared in regard to pay, status, and promotion. The result is inevitable. Competition in the older professions for women is relieved. As Miss Margaret Hodge points out: "In a working community, such as is found in Australia, where there is a very *small* leisured class, the competition in the teaching profession was exceedingly keen until other avenues of work were opened up for educated women." Medicine and civil service appointments are, of course, other professions open to women in Australia, New Zealand, and the United States. In Australia, though a woman has been appointed Judge's Associate, no woman has as yet been actually appointed to the Bench.

In Norway, again, every career, except the Church and the Army. is open to woman. She may be a teacher, nurse, doctor, author, journalist, lawyer, judge, or member of Parliament; in fact, her position closely resembles that of the enfranchised American woman. In Norway, eleven women are qualified to practise law, and one woman has been appointed judge in place of an absent magistrate—a post which she has now filled for many months. But among the women of Norway the practice of medicine appears to be more popular than that of law. Dr. Louise Quam writes: "Already in the time of the Vikings our history tells of women who practised medicine and surgery, and the custom has continued down the centuries." There are now about thirty qualified women practising medicine in Norway. Dr. Quam also gives an interesting account of the recent appointment of Dr. Thrude Johnsen to the office of district physician in Alten. "It is a vast district in the far north. She will have to travel by sea in an open boat, and over vast mountain wildernesses. We have had women doctors for years working districts where long sea voyages have to be made, but this is the first time a woman has been appointed a district physician." This love of the Scandinavian woman for the sea recalls a profession into which a Danish lady, Frau Von Banditz, has lately made her way—that of sea captain—and I am informed that she is neither the first woman to command her own vessel nor the only one in the world doing so at this moment. Another profession for which Danish women show a rather marked preference is agriculture. In every *Amt* (farming district) in Denmark a commission of three men is appointed, two of whom are elected from the district. Every man or unmarried woman earning a livelihood by farming, and satisfying certain conditions, is entitled to vote and to a small holding. The Royal Agricultural College at Copenhagen is the only technical establishment under State control, and it has always admitted women as students. Several women have thus qualified in agriculture, surveying, and horticulture, usually in order to manage their own inherited properties.

To pass on to Finland, we find that here politics is a career which women pursue with marked zeal and ability. There are in Finland twenty-one women members of Parliament, returned at the August elections 1913, but women have been returned since 1907. They are chosen from all grades of society and from various occupations. Six have been teachers, three journalists, one—a very able woman—is a cook, two hold high degrees in philosophy, one is a factory inspector, and one is a peasant's wife. All of them are, or have been, active in some branch of social or political service. Twelve of these women are married, and the husbands of three of them are also in Parliament.

In Finland, also, nearly all careers, except the Army and the Church, are open to women who are accustomed, owing to the Finnish system of co-education, to work side by side with the other sex. The legal profession, however, must be mentioned as a partial exception to the rule. On the motion of women delegates in Parliament a Bill has been passed enabling women to practise law, but this has not as yet received the sanction of the Czar of Russia. Nevertheless, a qualified woman has been allowed to plead as a barrister, though not to take the oath of judge.

In Sweden, also, there is a curious restriction in regard to women in these professions. They may practise as lawyers and barristers in all instances, the Supreme Court included, if unmarried. Married women are under their husband's guardianship, and for this reason cannot act as attorneys in court, nor hold any State appointment depending upon judicial qualifications. There are about thirty women doctors in Sweden, but they are debarred from the post of medical superintendents of hospitals. In fact, Sweden (and perhaps we should add Denmark) is a little less advanced than the other Scandinavian countries (Norway and Finland) in regard to professional opportunities. In medicine, the position of Danish women is precisely the same as that of their Swedish sisters; and while they are permitted to practise law they are excluded from the office of judge and are debarred from applying for any public appointments. Thus the women of these countries, although rapidly advancing, should properly be included under our second group of nations, which admit women to medicine and law in addition to the older professions, but debar them from the bench, the ministry, and, of course, from a parliamentary career.

In France, for instance, a law of December 1, 1900, allows French women who have taken their degree in law to take the oath as barrister and to be enrolled at the bar. They are specially forbidden, however, by the same law to fill the office of judge or to replace an absent magistrate. There are twenty women at the Paris Bar and five practising in the provinces. They plead in all the Courts—civil, criminal, administrative, and commercial—and in the exercise of the profession no difference is recognized between men and women.

In our third group of nations women are still excluded from all the legal professions. Yet there is little doubt that a special field of work awaits the woman lawyer. In Germany this seems to be illustrated by the fact that a number of German women, qualified as lawyers, though legally unrecognized, have been appointed by local women's societies to direct legal advice bureaux where women can obtain free advice and help in legal difficulties. These bureaux are extraordinarily popular. Other qualified women have been placed in charge of Children's Care Committee centres, and appointed as trustees and guardians.

There is, indeed, a certain indication of the tendency—the very unfortunate tendency, as some of us think—towards the separate organization of women's professions, in those countries where the opportunities of women are limited. It is in Germany, for instance, that we hear of a unique venture in journalism—a paper edited, written, published, composed, printed, and sent out entirely by women; in England that

medical women find it necessary to start special hospitals of their own since their opportunities of specializing are otherwise inadequate; in England, also, there are rumours of the founding of a "Woman's Church," and some reformers have conceived the idea of a "Woman's Parliament." In countries where men and women are accustomed to work side by side on equal terms, such anomalies appear to be unknown.

It is true, of course, that in most professions there is some special department in which the energies of women are peculiarly needed. Women doctors and lawyers, for instance, may be of special use to their own sex, and women judges will probably desire to specialize in women's and children's courts, where such exist. That is a totally different thing from the separate organization of women's work, for no other purpose than self-defence, and often with no better motive than sex antagonism and mutual distrust.

"PETITES FRANÇAISES."

By Marion Cahill.

(*Continued from page* 404.)

IV.

My little French girls have conceived a great admiration for everything English, even for English dress, particularly the tailor-made, and *le golfer*. "Ah!" sighed Marcelle, "never can I be happy without *le golfer*, and a cap to match. Then shall I be *tout-à-fait anglaise*. And I will speak English—but *loud*, and they will say, '*Voilà une petite Anglaise.*'" So in due course arrived *le golfer* and all to match. But no one exclaimed "*Voilà une petite Anglaise.*" For very good reasons—never had Marcelle looked more French. With seductive and most unsporting little curls which only the consummate art of an embryo Frenchwoman could arrange with careful carelessness escaping from the cap; with the daintiest lawn ruffles at the wrist and collar; and with the slimmest of high-heeled patent shoes—nothing more un-English from the "sporting" view could be imagined.

"Are you going to play golf, Marcelle?" I asked mischievously.

"*Mais non*, Miss!" she cried. "*Mais alors*, am I not English, *tout-à-fait* English, *très correcte, n'est-ce pas?* Tell me, am I 'orlrite'?"

V.

The French labour under the idea that the English are a deeply religious nation, and that everything that offends against their moral code is "shocking."

To-day Muguette dipped her fingers in the ink and proceeded to decorate her naughty little face with long vertical streaks.

"Oh! la! la!" cried Solange. "See, Miss, the little Muguette, is she not shockin'? See you, Muguette, *le bon Dieu* will not have thee in Heaven, never the shockin' ones go to Heaven, *n'est-ce pas*, Miss?"

"Then I will go to the *diable*," said the unrepentant Muguette, "he is nice—the *diable*—he does not say 'shockin'—shockin'—shockin'"—*Il n'est pas anglais, le diable.*"

"*Mais, comment!*" ejaculated the scandalized Solange. "*Vous dites que le diable est français? Méchante! Méchante!* The *diable* is of no country, he belong to all—but to all!" and she stretched her arms to their widest limits to show the extreme universality of the *diable*.

VI.

The history lesson is an exercise in diplomacy. We skirt warily round English glories, but we glow with subdued enthusiasm when *la belle France* is victorious. Napoleon nearly reduced us to civil war. To some, he is a god; to the others—few these—an unscrupulous adventurer who loved first Napoleon and then France. They rejoiced in his glories, wept over his defeat. Some carried his portrait in their blouses, which they kissed when they remembered it. They are very patriotic these little daughters of fair France. The strains of the "Marseillaise" will make them flush and bring tears to their eyes.

One day at *déjeuner* a rumour went round the room that war with Germany was imminent. At once all was uproar. Knives and forks were laid down, the hubbub of voices was deafening. Each was counting the number of men she could send to the war, ticking off on her fingers father, uncles, brothers, cousins. Consternation was writ large on every face. Soon the hush became as apparent as the noise had been. Slowly the tears were stealing down Ghisella's face.

"Why, Ghisella!" I said surprised. "It probably isn't true—don't cry."

"Ah, Miss," she exclaimed, "war is a science now—they shoot to kill."

"But, of course," I said wonderingly. "They always shoot to kill—if they can."

"You do not understand, Mademoiselle," said Yvonne in a subdued voice. "If they are killed—they do not come home again. If Frenchmen are killed, then we have no husbands. And we are of an age to marry ourselves," she concluded mournfully.

With pale faces and startled eyes they regarded each other. A husbandless future! Unthinkable! *Le bon Dieu* could not be so cruel.

"Perhaps it will be the Germans who will die," said Suzanne hopefully.

They breathed again. And soon, with true Parisian light-heartedness, they were in imagination greeting the return of French heroes.

VII.

The English literature lesson is one of the happiest hours. They are very quick to see artistic beauty, and have a rare sensibility remarkable in such young things, only that one remembers their Latin blood. Henry V filled them with joy. Frankly they were all deeply in love with him, although he was notably *un type anglais*.

"I should like a husband like that," said Armande, her eyes shining. "Mademoiselle, think you I find a husband like Henry?"

"I hope so," I answered bravely.

"The Dream of Gerontius" appealed both to their artistic sensibility and religious sympathies. And at the concluding verses of the angel—

> Farewell, but not for ever, Brother dear,
> Be brave and patient on thy bed of sorrow,
> Swiftly will pass thy night of trial here,
> And I will come and wake thee on the morrow,

a sigh escaped from the class—an expression of religious exaltation and deep spiritual feeling.

Another favourite is Francis Thompson's "Hound of Heaven." Difficult as the language is, the deep mysticism appeals to them, and when for the first time I read to them "The Making of Viola" they were filled with a rapture of delight.

But yet their taste is essentially French. And it is a true saying that different countries cannot share each other's literature. They admire Longfellow, while to Shelley they remain cold. Still, they are wonderfully receptive, of great sensibility and exquisite feeling, and I never come away from them without remembering that France is *la douce* as well as *la belle*. And I trust that a nation of such possibilities, such refinements, such graces, will one day resume its place among the nations, and once again teach the world the fine meaning of their exquisite phrase: "la politesse du cœur."

Sir Frederick Edridge, Chairman of the Whitgift Foundation, Croydon, has defrayed £1,500 of the cost of equipping the Whitgift Grammar School with an armoury, a dark room for photographers, and a sports changing room. Sir Frederick has also transferred to the trustees India Three per Cent. stock to the value of £1,980 for the endowment of a leaving exhibition of £50 per annum, and to provide for certain special prizes. The school has had many previous benefactions from the same donor.

A STANDARD FOR THE KING'S ENGLISH.

By Prof. Walter Rippmann, M.A.,
Chief Inspector of the University of London.

What is good English speech? What form of English speech ought we to impart in our schools? What should be our attitude to dialect speech?

These questions are forcing themselves on our attention. The interest in the spoken language is becoming very keen; of this we have indications on every side. Dr. Bridges, the Poet Laureate, has recently issued a tract on "The Present State of English Pronunciation," and, under his auspices, a Society for Pure English has been founded. Mr. Bernard Shaw shows his wonted alertness by presenting a Professor of Phonetics in his "Pygmalion." We have a Poetry Society that lays stress on the reading aloud of verse. The Committee on English appointed by the National Education Society of America, in its recently published report, states that "all expression in speech demands distinct and natural articulation, correct pronunciation, the exercise of a sense for correct and idiomatic speech, and the use of an agreeable and well managed voice."

There can be no denying the tendency to uniformity, to a standard, in educated speech. We notice it in the speech of the actor unless he be taking a dialect part; we expect him to pronounce words in a certain way, and he knows, or ought to know, that any peculiarities in his speech interfere with our enjoyment. The orator and lecturer sometimes show greater divergence, but hardly ever does their speech contain very marked dialect features. Even in Scotland and in the United States the experienced public speaker will be found to adopt, intentionally or unconsciously, a more or less close approximation to the English standard.

Prof. Wyld, in the December number of *Modern Language Teaching*, has shown very clearly how the Received Standard, as he calls it, has developed. He rightly sees an important factor in the tendency to uniformity in our great boarding schools, which exercise a levelling influence in this and in other respects. The tendency is supported by intercourse among the educated, who rightly desire to avoid the pronunciations and phraseology peculiar to one district only, and hence troublesome to those outside it. They obey the sound principle that speech best fulfils its function of communicating thought when there is nothing in the manner of speaking that distracts attention from the thoughts to be conveyed.

Among speakers of the Received Standard the points of divergence are nowadays relatively few. Some differentiate *w* and *wh*, others do not, and the *a* of "answer, after, pass," &c., shows variations. More important is the treatment of *r* between vowel and consonant (as in "arm") and finally (as in "far"). There are differences in the pronunciations of the vowels in unstressed syllables (*e.g.* in the endings *-age*, *-ate*, *-ness*). There is some uncertainty as to the accentuation of long words derived from Latin (*e.g.* "laboratory, obligatory").

The other extreme is dialect, which remains fairly pure in rural areas, but elsewhere is subject, more or less, to the influence of the Received Standard. This is especially the case in large towns, where the different social classes show varying degrees of approach to the standard.

It is obvious that such modification by the standard constitutes a grave danger to the dialects. Their vitality is further diminished by the present spelling, which affords no adequate means of recording the spoken dialect, because many of our letters no longer have stable values. In German, which has a more phonetic spelling, there is an extensive dialect literature. Lastly, dialect suffers from being ignored or condemned in our schools.

Before showing how the decay of dialect may be checked, it will be well to point out that the tendency to a standard speech among the educated is growing. There was far less uniformity one hundred years ago. Those familiar with the controversies that raged at the end of the eighteenth century and the beginning of the nineteenth (admirably dealt with in Prof. Lounsbury's book on "The Standard of Pronunciation in English") are aware that many variations have since disappeared. To give a few examples, the actors said "ferce, perce," while in polite society "fierce, pierce" was the recognized pronunciation. Sheridan, who wrote one of the earliest pronouncing dictionaries, approved the pronunciation "sassidge." (Pepys wrote in his Diary: "Thence to the Greyhound in Fleet Street, and there drank some raspberry sack and eat some sasages, and so home very merry.") Walker, who was Sheridan's most important successor, condemned "sassidge" as a "vulgar" pronunciation. It was Walker who said of the word "cucumber" that it "seems too firmly fixed in the sound of 'cowcumber' to be altered"; and of asparagus, "The corruption of the word into sparrow-grass is so general that asparagus has an air of stiffness and pedantry." Smart, revising Walker thirty years later, approves only "cucumber" and "asparagus." Kenrick, in 1773, refers to "'boil' and 'join' and many others, which it would now appear affected to pronounce otherwise than 'bile' and 'jine.'" Pope had made "join" rhyme with "mine" and "divine.' Before long this variant yielded to the other pronunciation. For a long time people were divided as to the pronunciation of "gymnastic" and similar words: some gave the *g* its present value, others pronounced it as in "get." In the accentuation there was also great variety; for a time "blasphemous, character, contrary" were stressed by some on the second syllable, by others on the first. The poet Rogers, early in the nineteenth century, says: "The now fashionable pronunciation of several words is to me at least offensive. 'Cóntemplate' is bad enough, but 'bálcony' makes me sick." The prolonged discussions about the accentuation of the word "decorous" makes most amusing reading.

Now this growing tendency to uniformity is a feature of standard speech which distinguishes it from dialect. In dialects change takes place unconsciously; in some more quickly than in others. The cockney speech in the novels of Dickens is very different from that heard now. Standard speech is, more or less consciously and successfully, taught in our schools; it is preserved by strong social influences. Its rate of change is consequently slow, and would be still further reduced if we had a rational spelling that adequately represented the sounds, and if our teachers received a better phonetic training, which would enable them to check deviations from the standard which now pass unnoticed.

There is no reason to assume that the movement towards uniformity will be checked; everything points the other way. Nor is it desirable, for a standard speech is essential. It is wanted for public speaking for reasons that have been given. Of course, this does not exclude dialect poetry, drama, &c. It is wanted for social intercourse. Many have been handicapped in their career through faulty speech. It is wanted for teaching. Good literature makes its greatest appeal when it is well read aloud; indeed, reading aloud affords a test, not only of the reader's apprehension of the meaning and beauty of a passage, but of the writer's style. It is the teacher's duty to read aloud well and to secure good reading from his pupils. But we must render this possible for the teacher by making it clear what constitutes "good English speech," and by helping him to understand the difficulties of his pupils. I believe that, before long, every Education Authority will arrange for what I may call a linguistic survey of its district. The results would be embodied in a little handbook giving the main features of the local pronunciation and vocabulary. This would be an invaluable aid to the teacher and would stimulate his interest in local speech. Occasionally the pupils would be called upon to repeat a story in dialect after telling it in standard speech. Dialect verse and prose would be collected, and some time would be found for it in the English literature lesson.

The teaching of English is not confined to these islands. In Australia, in Canada, in South Africa, increasing attention is being paid to spoken English, and that inevitably leads to the question: What form of English shall we teach? In the United States the problem is also arousing widespread interest, and there, too, "correct speech" requires to be defined. The English language is rapidly gaining in popularity among foreigners of every nationality; and again we are faced with the question: What is the best pronunciation of English?

We need a generally accepted standard of speech also in order that we may have a rational spelling, and a rational spelling in order that we may record and preserve the standard speech. This has been excellently stated by Prof. Louns-

bury, in the concluding pages of his book on "The Standard of Pronunciation in English," from which the following passage is taken:—

There can never exist that infallible guide for whose appearance we are all longing until the spelling of every English word carries with it its own pronunciation. Even then the variation of accent must continue to show itself, though it will be reduced to the lowest possible limits. . . . Long and tough is the road that must be travelled before any such result could be reached in a language like ours, which enjoys and rejoices in the distinction of being the most barbarously spelled of any cultivated tongue in Christendom. We are weltering in an orthographic chaos, in which a multitude of signs are represented by the same sound and a multitude of sounds by the same sign. Our race as a race has, in consequence, lost the phonetic sense. What can we hope for the orthoepy of a tongue in which, for illustration, the short sound of *e* found in "let," represented by *ea* in "head," by *ay* in "says," by *ai* in "said," by *ei* in "heifer," and by *a* in "many" [also by *eo* in "leopard," by *ie* in "friend," and by *u* in "bury"]? Or of the long sound given by us to the same letter *e* in "mete," represented by *ea* in "meat" or by *ee* in "meet"; and, furthermore, by *i* in "magazine," by *ie* in "believe," by *ei* in "receive," by *eo* in "people," and by *æ* in "ægis" [also by *ey* in "key" and *ay* in "quay"]? Or take the sound denoted by the digraph *sh*, seen in "shift." It is represented by *ce* in "ocean," by *ci* in "suspicion," by *si* in "dimension," by *ti* in "nation," by *xi* in "anxious," by *sci* in "conscience," by *ch* in "machine," and by *s* in "sure" [also by *ss* in "passion"].

The conditions are unfavourable on the side of the language itself; they are fully as unfavourable on that of the users of the language. Most of us love our present orthography—love it for its uncouthness, its barbarousness, its unfitness to do the very work for which orthography is presumed to exist at all. We cling with passionate devotion to its worst anomalies. We not merely shudder at the prospect of changing a spelling which defies all attempts at proper pronunciation [*e.g.* "victuals, yacht, buoy"], but at the suggestion of changing one that, in addition, disguises completely the derivation [*e.g.* "rhyme, scent, sprightly"], about which in other instances we profess to be profoundly solicitous. Even the pettiest alterations in the interest of a mere mechanical uniformity [*e.g.* "diagram, programme; humour, humorous"] meet with the sturdiest resistance. On this whole subject, indeed, there is no ignorance so profound and comprehensive as that which envelops the minds of many men of letters, if we can judge of their degree of knowledge by the character of their utterances. It requires a far more enlightened opinion than prevails yet among the large majority of these before we can look for the success of any effort to cause our tongue to approach even remotely to the phonetic excellence of Italian or Spanish or German. Yet, until that time comes, no small share of our lives will be spent in the profitable and exciting occupation of consulting dictionaries, in the equally profitable and exciting discussion of particular words, and in airing our opinion and delivering our decisions upon points about which one thoroughly educated man is as good an authority as another and nobody is an authority at all.

These words were penned ten years ago. If Prof. Lounsbury were writing now, he would adopt a more hopeful strain, realizing that even the man in the street is becoming alive to the importance of good speech. The time has come for us to establish a standard of English speech and put an end to the uncertainty and the misconceptions with which most of us are afflicted. It has become customary for the speaker of English who prides himself on his pronunciation to designate any deviation from his personal standard as "cockney." This is really too simple a way of getting over the difficulty.

The standard that we require will, in the main, be based on the best present usage, which needs to be determined more carefully than has so far been the case. It should be as pleasing æsthetically as we can make it. That implies not only that it shall be distinct (which does not mean that we should give up such manifest simplifications as are found in "handkerchief, castle, knee, condemn"), but that it shall be harmonious. The production of the voice, the basis of articulation, must alike be considered. Many dialects are disqualified from ranking as standard speech, not so much on account of individual sounds as because the manner of producing the voice is faulty. The standard will be, let us hope, a finer instrument for social intercourse and for literary purposes than any existing form of speech.

How is this ideal to be attained? We have no academy comparable to the French Academy—and that has never done anything for the pronunciation. We have a Royal Society of Literature, which shows the same unwillingness to face this problem. We must turn to the Board of Education. Well may we do so; for it is a matter of supreme interest for the teacher. Bad speech in our schools brings with it many disadvantages. The Board of Education has issued directions for the pronunciation of Latin. (The matter was discussed at the last Head Masters' Conference, which gave rise to a correspondence in the press; and many of the letters showed that phonetics is still the subject on which people are ready to rush into print without possessing the most elementary knowledge.) The Board of Education has done much to encourage the use of phonetics in the teaching of French and German. Surely the time has come when we may urge it to take up the pronunciation of English.

Therefore we urge the Board of Education to summon a Conference on Standard Speech, representative of the English-speaking world; a Conference not only Imperial, but Anglo-American. What could more fitly celebrate the Hundred Years of Peace than such united endeavour to establish good English speech on a firm foundation?

REVIEWS.

Comment apprendre le Latin à nos Fils. Par J. Bezard. (3fr. 50. Paris: Librairie Vuibert.)

M. Bezard's book mainly takes the form of verbatim reports of lessons throughout the various classes of a *lycée.* Beginning with the lowest form he gives us specimens of the sort of work necessary as a preparation to the study of Latin, such as oral analysis in the mother tongue, the decomposition of words into their elements, and their arrangement in families. So M. Bezard takes us through the various forms and throws out many useful suggestions, dealing both with the mechanical aids to the acquirement of Latin, such as the systematic use of notebooks for recording words and constructions, and with the wider questions of how far the Direct Method is applicable to Latin and how an æsthetic appreciation of ancient authors may be best imparted. M. Bezard well points out that the vocabulary which is required for the Direct Method as practised with modern languages is found in out-of-the-way authors, and even when acquired is not particularly serviceable to the student who would read the masterpieces of Latin literature. In place of this he suggests the use of Imitative Exercises (*Le Thème d'Imitation*). The teacher composes a short prose narrative based upon a text which has been read by the class (a fable of Phaedrus is given as an illustration), and it is turned into Latin by the class with the aid of the vocabulary notebooks which they have constructed from the original text. The method can hardly be said to be new, but it is certainly sound, and the same may be said of much which the book contains. More novel perhaps is the following suggestion, which could be practised, however, only with individual students. The pupil reads a translation aloud, phrase by phrase, and the teacher gives the Latin, which is repeated by the pupil. Among the most interesting chapters are those consisting of lessons on Livy's "Rhetoric" and on "Nature" and "Humanity" in Virgil.

The form which M. Bezard has chosen for his book does not lend itself to conciseness, and we sometimes found the book rather tiresome reading owing to the presence of irrelevant matter. The question of a variant reading provokes a dialogue between master and pupils, of which the following is an extract:—

Nous ne pouvons pas la pratiquer (la critique des textes) nous-mêmes . . . mais nous pouvons-nous en rapporter aux savants comme Benoist et Goelzer; il suffirait de consulter une grande édition critique pour voir avec quel soin les manuscrits sont comparés, collationés. — Sachez au moins qu'elle existe; c'est l'édition Ribbeck. Or, elle donne "pénates," et la question est tranchée.

— C'est ce que je disais!

— Mais pas pour la même raison!

— J'ai eu le bonheur de connaître un de ces savants, M. Léopold Delisle! Si vous saviez avec quelle conscience un homme pareil fait ses recherches; quels voyages, quel travaux! Il est peu probable que dans la Section C nous possédions un de ses futurs émules. Il est bon, du moins, que vous sachiez apprécier partout la valeur de l'esprit scientifique.

Had M. Bezard pondered his concluding platitude a little more deeply he would scarcely, we think, have *tranché la question* in this manner. In half the space a few hints, however elementary, might have been given of the basis of manuscript classification and the use of an *apparatus criticus*. Such passages as this are numerous, and, though the remarks may be harmless, we cannot see that M. Bezard adds to the value of his book by transcribing them into cold print. The author, however, shows himself a very able teacher, and there is much in his book that is useful and suggestive.

A History of University Reform from 1800 A.D. *to the present time.* With suggestions towards a complete scheme for the University of Cambridge. By A. I. Tillyard, M.A., St. John's College, Cambridge. (10s. net. Heffer.)

A year ago the Prime Minister stated in the House of Commons that the Government did not intend to advise the issue of a Royal Commission on the Universities of Oxford and Cambridge. Whatever the statement may mean —and it may have half a dozen meanings—it is very plain from Mr. Tillyard's survey that reform of these ancient institutions is long overdue; and, when it is taken in hand, his present volume will prove extremely useful, if not for his specific proposals, at any rate for his account of the past handling of the question. After a general historical sketch of the two Universities, he sets forth a lucid summary of the criticisms passed upon their fulfilment of their functions, with the defences offered, and explains the purport and effect of the Royal Commission of 1850 and the succeeding legislation of 1854 and 1856, then the ideas promulgated by Mark Pattison and Goldwin Smith, the legislation of the seventies, and the latest suggestions from Oxford and Cambridge, including Lord Curzon's proposals. The important questions of the relation of University and Colleges, and of the financial resources of the Universities, are considered in special chapters. The rest of the book is occupied with Mr. Tillyard's own suggestions for a scheme of reform for the University of Cambridge. The work is thus seen to be very comprehensive, and both in statement and in argument it is lucid, fair, and temperate. Mr. Tillyard assumes that the University "is first and foremost a place of teaching," and he takes care to insist that "the question is one of education, and of service to the whole nation." Whether we shall ever see an amalgamation of the Cambridge Colleges into its six powerful and nearly equal institutions, "strong in numbers, and with ample resources, which could compete with one another on fair terms," remains to be seen; but manifestly the University must keep and increase its superiority over the Colleges, the shocking waste of power must somehow be remedied, and access must be afforded to the poor student on equal terms with the rich, as in the other Universities. The Reform Committee, indeed, "are of opinion that, with the large sums given to students, a Cambridge education is accessible to any student, however poor, who has given evidence of ability." If the members of that Committee had been poor men with clever sons, they would have known better. Mark Pattison had wiser inspiration on this point. "Let Oxford," he said, "become the first school of science and learning in the world, and at the same time let it be accessible at the cost only of board and lodging, and it will attract pupils enough." If a drastic reorganization of finances and of administration still involves a deficit, it is for the Government to make up the balance, so that the institution be thoroughly equipped and no one be excluded that can find his own board and lodging.

Expectant Motherhood: Its Supervision and Hygiene. By J. W. Ballantyne, M.D. (Cassell.)

The hygiene of pregnancy is a subject of national importance, but for many reasons it is a difficult one to reduce to the proportions of a textbook. It is extremely desirable that all women who will one day be mothers should have an adequate and balanced knowledge of the discomforts that have to be faced and the risks that have to be guarded against; and yet it is probable that the ignorant young wife would usually end the perusal of such a work by being terrified. Percentages are poor comfort; and the many complications which must be considered, however rarely they occur, end by occupying too much of a patient's horizon. It is also unavoidable that a book which contained much nursing detail and precise medical description would become unreadable to the so-called lay person and yet fail as a work of reference for doctors and nurses.

Amidst these pitfalls Dr. Ballantyne picks his way with conspicuous skill. No woman who has to deal, in the way of guidance, with other women will fail to find him stimulating to thought; and every doctor who has to deal with family problems will thank him for much lore which is scattered through medical literature or obtained by piecing together very varied experience. As a means of making an appeal to an authority which may overbear a fussy grandmother or an uneducated nurse there will always be room on the shelves of a well equipped library for such a book as this, and yet it is hardly one to recommend to the expectant mother herself.

This may not appear to be extravagant praise, but the book deserves the highest commendation, for it is extremely readable and puts the broad facts of childbirth and the physiological demands of the mother in such a way as to be a real contribution to the management of pregnancy. Chavasse's books, "Advice to a Wife" and "Advice to a Mother," have long held the field, and it is time they were rewritten in the light of modern knowledge. They give much detail which Dr. Ballantyne prefers to omit, but he has done well the task he undertook.

The Government of Man. An Introduction to Ethics and Politics. By G. S. Brett, M.A. Oxon. (3s. 6d. net. G. Bell.)

Without the sub-title and the motto on the title-page it would be somewhat of a puzzle to understand the title. The motto is a sentence from Montesquieu: "Men are governed by many things—by climate, religion, laws, precept, example, morals, and manners—which act and react upon each other, and all combine to form a general temperament." It is with the historical operation of these things, then, that Mr. Brett is concerned. There is no lack of studies in ethical theory or of essays in political science, but these are too often destitute of historical setting or background, and it is this want that Mr. Brett supplies. "The political and ethical theories are outlined; the immediate circumstances are indicated; and the outstanding features of the transitions from period to period are briefly noted." "This is not intended to be a history of ethics, or of politics, or of civilization; it is an attempt to keep before the reader's mind the continuous interaction of the different factors which ultimately produce types of civilization, forms of government, and theories of conduct." Without reproducing the ordinary historical material, Mr. Brett goes through ancient and modern history, selecting the topics most closely relevant to his purpose, mainly the various aspects of social life, religious movements, and the relation of the different classes in the different communities. To each chapter he places an appendix, giving a select chronology, or books of reference, and usually one or more pertinent extracts in illustration. The volume is most thoughtfully and competently written, and the style is plain and pointed. It is a very suggestive and valuable commentary on the ordinary history, and ought to be placed within reach of all more advanced students of the subject.

GENERAL NOTICES.

FRENCH.

(1) *French Translation and Composition.* By H. J. Chaytor and E. Renault. (2s. Heinemann.) (2) *French Essays and Essay Writing.* By J. P. R. Marichal. (2s. Dent.)

These two aids to the teaching of French composition are valuable

(*Continued on page* 434.)

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Edited by C. W. BELL, M.A., King's School, Canterbury. Crown 8vo, 146 pages, **1s. 3d.**

This delightful text is here edited for the first time for English Schools. The story deals with the adventurous times of the sixteenth century.

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N.B.—The Publishers will be glad to forward to any address their special New Descriptive List of Works on Modern Languages, **comprising more than 400 volumes,** prospectuses of above and many other Books and Series on New and Interesting Lines.

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additions to the armoury of the practical teacher. They approach the problem from different sides, but their object is the same: a mastery of the French language. Extremists may condemn one method or the other, but moderate men will consider that one supplements the other. The first is well printed, but not well bound. In the second the type is not so big, but the book opens well.

(1) As the title implies, the first employs translation as part of the method. Preparation is to be made for the weekly composition by an unseen translation. The authors write: "A form expected to write a free composition upon war, or to translate an English description of a battle, will certainly produce better results if they have previously read some French pieces bearing upon the subject than will be apparent if they set to work without any preparation of the kind." This is not elegant English, but the idea is sound, and it is well carried out. It is a happy notion to put side by side G. de Maupassant and Erckmann-Chatrian, Thackeray and Robert Hall, Michelet and Carlyle, Bossuet and Sir W. Raleigh, to take a few instances. It is a happy notion, too, to place side by side Molière the adaptations of his work by Fielding and Wycherley, Shakespeare and the renderings of Alfred de Vigny. The comparative method here employed should lead to a lively appreciation of literature. The reviewer has nowhere noticed passages more suitably chosen.

(2) The second book contains 29 pages in English on matter and form: very good sense, if rather laboured in style, yet enlivened by an occasional epigram; 40 pages of preparatory exercises follow, containing remarks on the acquisition of a good vocabulary, reproduction exercises based on La Fontaine, exercises in description (the analysis and development of an idea and the description of a picture), in the expression of sentiments, in letter-writing. The second part, all in French (86 pages), contains illustrations from French authors of descriptions, portraits, narrative, letters, and dialogues, with an analysis of each. The last section gives plans for various types of essay, and a list of further subjects. The patient and lucid analytical method here employed should be used with the comparative method of the first book. Translation, whatever our estimate of its value may be, is no substitute for it. Analysis is probably the strong point of French methods and the weak point of English methods.

HISTORY.

"Home University Library."—*The Growth of Europe.* By Grenville A. J. Cole, Professor of Geology in the Royal College of Science for Ireland. (1s. Williams & Norgate.)

Prof. Cole's "essay, both in geography and geology," takes the reader sytematically through Europe, showing him how the surface features are the result of remarkable and comparatively recent changes, mainly through actual upheaval and depression of the land, and less through the wearing away of the rocks and the deposition of waste. The story is strangely impressive, and the movements of man are constantly co-ordinated with the operations of Nature. Simple maps and diagrams supplement the detailed atlas. The technical detail renders the text somewhat stodgy, but there is abundant relief in the scenic descriptions and in the historical and sociological interest.

"The English People Overseas."—Vol. VI: *South Africa*, 1486–1913. By A. Wyatt Tilby. (7s. 6d. net. Constable.)

This volume concludes the first part of Mr. Tilby's comprehensive undertaking; in future volumes he will follow the fortunes of English people in the United States, Canada, and India (from 1828). He has now displayed the founding of the English type of civilization; the succeeding volumes will handle the development of that type. (Parenthetically, he excuses himself to perfervid Scots for his use of the term "English." He has used it throughout, he says, "not from any desire to disparage our masters north of the Tweed"—a compliment that sounds too like a jibe—"but as indicating English-speaking." The explanation will not serve—at any rate, not on the other side of the Border. Why rub people the wrong way so gratuitously and senselessly?) Well, there can be no doubt that Mr. Tilby has laboured hard and long, not merely to summarize and vivify the facts recorded by his predecessors, but also to verify existing histories, and to supplement them with fresh facts, both historical and constitutional. He has also endeavoured, with much success, to divest himself of prepossessions and to stand clear of party manœuvres. Probably the present volume shows more independent research than any of the previous volumes, and it outlines the history more fully. Inevitably there are points that will call forth dissent. If Mr. Tilby's censure of Lord Glenelg be justified, then right is might, and is that so? If Rhodes was right on some occasion "in his stand for high principles," how comes it that Glenelg was wrong? Mr. Tilby has not yet got inside the Bloemfontein Conference. But on the whole it would be rash to say that any one else would have held the scales more fairly. The volume is a most interesting work, and it is written with much verve and directness.

A Source Book of London History. From the Earliest Times to 1800. Edited by P. Meadows, M.A. (1s. 6d. net. Bell.)

A most varied and interesting selection of passages, generally from contemporary sources, relating to the history of London, with "special prominence to those events which concern the City as a whole, its growth, its corporate life, and its connexion with national affairs." The order is chronological, from the Norman Conquest (except for a few passages from the Anglo-Saxon Chronicle) downwards to 1800. The extracts are usually introduced by a helpful explanatory note.

Piers Plowman Histories—Junior Book VII: The Nation and its Government from 1485 to the Present Day. By E. H. Spalding, M.A., Lecturer in History, Goldsmiths' College, University of London, and Phyllis Wragge, sometime Lecturer in History in the same College. (2s. Philip.)

The large outlines of the political history are presented in a fresh and interesting narrative, and social conditions are vividly pictured in simple sketches of village government in the days of Elizabeth, a Parliamentary election in the eighteenth century, the reform of prisons, local government in the nineteenth century, the post, and so forth. The volume is very attractively written, and there are eighty-eight excellent illustrations, including numerous maps and portraits.

A Guide to Historical Fiction. By Ernest A. Baker, M.A., D.Lit., F.L.A. (21s. net. Routledge.)

On the basis of his previous work, "History in Fiction," Dr. Baker has now constructed what may fairly be regarded as a new book. And a handsome and substantial looking quarto it is. Works of historical fiction (with a free interpretation to "historical") are massed in groups according to the countries that furnish their subjects; the country groups are marshalled in divisions according to reigns, movements, campaigns, battles, and the like; and the chronological order is followed. The British contingent occupies 166 pages, the American 79, the French 51, and so on. Notes are appended to most of the entries, indicating the subject, the treatment, and various other matters of literary history. The index (in three columns) runs to about a hundred and fifty pages. The work very reasonably claims to constitute "an invaluable illustrative aid to the study and teaching of the history of all countries and all ages from prehistoric times to the present day."

GEOGRAPHY.

Land Form Pictures. Continental Islands, Peninsula, Promontory, Bay and Harbour, Cliff Coast, Sandy Coast, Lake, Moraine Hill Landscape, Volcano, Plateau and Folded Mountains, Mountain River Valley, Glacier. (1s. 8d. each net, cloth, eyeleted; or 2s. 4d. each net, C.R.V.; or the set on one roller, wall atlas style, 24s. net. Johnston.)

These artistic productions will prove popular with the scholars of the lower forms. In the example under review—viz., Cliff Coast—the coloured perspective illustration of an actual land form is particularly pleasing. Each sheet in the series is 18 by 26 inches, and contains a plan of the land form in addition to the picture, so that it becomes a valuable asset for map-reading work. The accompanying letterpress contains sufficient material for an interesting lesson in connexion with each sheet.

A Tour of the World. By J. W. Page, F.R.G.S. (1s. 6d. Macdonald & Evans.)

This is one of the volumes intended for lower and middle forms, and belongs to Mr. Page's series of human geography books on modern lines. It is pleasantly written, and well illustrated with carefully chosen photographs. It is possible that interest would not have been weakened, and utility increased, if a rather more systematic treatment had been adopted. The value of constant reference to an atlas is realized, but the inclusion of sectional maps in the case of this volume would have been an advantage. A dozen references to another book in a single page may cause divided attention, and in any case children are less likely to make voluntary use of a book that requires a companion volume. Apart from this the work is distinctly good, and should lead to a definite concept of a "natural region."

Elementary Commercial Geography. By Hugh Robert Mill, D.Sc., LL.D. Revised by Fawcett Allen, Assistant Map-Curator to the Royal Geographical Society. (1s. 6d. Cambridge University Press.)

This is the fourth edition of Dr. Mill's deservedly popular volume. Mr. Allen's revision has brought the statistics up to date and has led to some expansion of the text. Part I—General Principles and Commodities of Commerce—occupies about one quarter of the whole. Part II—Countries of the World—contains a careful analysis of those commercial facts most valuable to the geographer. Constant comparisons of one area with another are made, and these comparisons are materially strengthened by the use of many different founts of type throughout the book.

The New School and College Atlas. (3s. 6d. Bacon.)

There are 103 physical, climatic, political, and commercial maps, and a latitude and longitude index. In general each map occupies a

(*Continued on page* 436.)

THE WAR AND THE SCHOOLS.

The first effects of the War are likely to be serious on many English Schools, but we are anxious to do our utmost to enable our clients to keep up their numbers.

It is, we think, generally recognized that a reduction in fees will be necessary, not only for the children of officers in the Army and Navy, but also for those whose finances have been seriously affected. We would ask our clients to notify us of the reductions they are willing to make. Of course there is a limit beyond which fees cannot be reduced.

As many children will not be able to return to schools on the Continent for some considerable time, they will have to enter establishments in this country, and preferably those which give special facilities for the study of French and German. Several of our clients have already notified us that they have native resident teachers on their staff.

Principals of some of the smaller schools may find it advisable to amalgamate, and we shall be glad to place our services at their disposal for this purpose.

Judicious advertising should be very helpful at this time, and, being experts in the matter of educational publicity, we shall be glad to advise as to the form of advertisement and media to be used to ensure the best possible return. Nervous economy just now in the matter of advertising is very unwise, and may prove most costly.

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full page (9½ in. by 7 in.), though in a few cases the maps are double-paged ones. The chief recommendations inserted in the recent Board of Education Circular, No. 834, have been kept in mind throughout the compilation of the atlas, and the suggestions of the British Association "School Books" Committee have also influenced its preparation. There is a large amount of well arranged material; the colour schemes are good, and the map projections chosen are most satisfactory, and have been stated on all of those maps which have been specially prepared for this atlas.

Atlas Geographies. By T. Franklin, E. T. Griffiths, and E. R. Shearmur. Part III.—Senior. No. 1A: British Isles. (1s. 10d. net. Johnston.)

This new number helps to strengthen the good opinion formed after a perusal of No. 4 (Africa), which was recently noticed in these columns. The text material is accurate and well arranged, and the revision exercises act as real stimulants. The 50 maps and diagrams render the book self-contained, and bear the impress of careful work, the omission of the 64 degrees July isotherm on Map 3 being the only obvious error. The volume is a good, inexpensive production.

RELIGION.

Vital Problems of Religion. By Rev. J. R. Cohu. (5s. net. T. & T. Clark.)

In his foreword the Bishop of St. Asaph well describes this book as "a sincere and earnest attempt to get at the inner essence of things." The writer deals with such old questions as the Problem of Evil, the Relations between Religion and Science and Religion and Theology, the Freedom of the Will, the Significance of Personality, but he has brought a singularly independent mind to bear upon them with the result that, in spite of a tendency to repetition, there is hardly a dull page in the book. It is not to be expected that everyone will agree with his conclusions, but no one will rise from reading the book without a greater understanding of the problems involved and also a pleasant sense of sharing their weight with a large-minded, balanced, and thoughtful intellectual companion. The writer really discusses, he does not merely make emphatic statements; he treats his readers as his equals and fellow-seekers after the truth behind difficult matters. While admitting that St. Thomas is the Patron Saint of the age, he finds a constructive impulse at work behind all the apparent scepticism. As for style, he disarms all criticism at the outset. "I have tried to curb two defects to which my native tongue and my profession make me peculiarly liable, viz. Gallicisms and 'the warm glow of the preacher's rhetoric.' They are still there." Before such frankness a reviewer is dumb.

Lay Views by Six Clergy. (3s. 6d. net. Longmans.)

This book will have many warm friends and some warm enemies, but none of its readers will be indifferent. We confess that, with all our respect for the clergy, we did not expect to find among their number such understanding of the point of view of the ordinary man in respect of religion and Churchgoing, nor such sympathy in discussing his point of view. All the essays show a desire to look facts in the face, a large charity and a sense that, in spite of much continuity, the problems of to-day cannot be altogether those of past centuries. It is delightful to have the good people who don't go to Church labelled as Jothamites (we leave our readers to discover why) and to find that a Jothamite is still very really within the pale of these large-minded Churchmen. It is refreshing to read Dean Inge's words, "It is surely true that no professional work is quite so badly done as the average preaching in the Church of England," refreshing because such a statement points to the possession of a standard and an absence of that professionalism which refuses to admit a defect. It is impossible to draw distinctions between the essays where all are so good. Dean Inge treats of "The Causes of Decline in Churchgoing," Rev. R. B. Tollington of "Personal Religion," Rev. W. Manning of "Christianity and Organization," Canon E. H. Pearce of "The Place and Power of the Layman," Rev. W. S. Swayne of "The Economic Problem and the Kingdom of God," and Rev. H. B. Colchester of "Religious Education." We hope the book will be widely read.

"Home University Library."—*The Church of England.* By Canon E. W. Watson. (1s. and 2s. 6d. Williams & Norgate.)

We began the reading of this little book at the last chapter, feeling that the handling of the nineteenth century, with all its complexities of "Low" and "Broad" and "High" and "Good" parties within the Church, would be a crucial test. We were not disappointed. It is both clear and interesting; the writer is impartial without being unduly detached; the contributions of each party to the Church of to-day are carefully traced and put forward; and all in a liberal, charitable spirit, and in such lucid style that the book makes absorbing reading. It is an achievement to have done this in such limited space.

The Bible of To-day. By Rev. Alban Blakiston. (3s. 6d. Cambridge University Press.)

The most widely useful chapters in this book will almost certainly be the second and third, in which the Text, Literature, and Canon of the Old and New Testaments are treated, and much information that has hitherto been the property of the scholar is brought to the level of the ordinary man. The first of the four chapters deals with general matters, such as inspiration, historical methods, Bible-study methods, all of which have been more adequately treated by Adeney, Raymont, and others. Incidentally we may notice the writer's failure to deal with one of the greatest problems to the ordinary layman trying to define inspiration—viz., what is the difference between the inspiration of Biblical literature and that of much other literature—say between Psalm cxxxix and Thompson's "Hound of Heaven," or between the Life and Work of Jeremiah and that of Socrates? Is it qualitative or quantitative, or both? The author simply heads a section, "The Contents of an Inspired Book will be Religious" (page 13, section 7). He does not consider what differentiates one religious book from another. The last chapter is an interesting and fairly exhaustive sketch of the Religious Affinities of Judaism and Christianity, and covers in interesting fashion the influences and literary output of the inter-Testament period.

Scenic Studies of the Bible Background. By Sophie M. Nicholls. (3s. 6d. Longmans.)

The text of the book interprets a series of photographs of representative scenes in Palestine. Some of these have suffered from reduction to a small scale, especially such wide views as the Plain of Esdraelon. Others (*e.g.* the Shepherd, Joseph's Well, Herod's Temple) are clear and arresting, while the view of the Desert Hills of Judaea makes one shiver with a sense of stony desolation. The verbal descriptions are admirable and will serve to make the book most useful to teachers of the Bible. One could wish Miss Nicholls had the opportunity of illustrating George Adam Smith's classical work, "The Historical Geography of the Holy Land," which seems to us to lack this one thing only.

Isaiah xl–lxvi. Edited by Rev. W. A. Elmslie and Rev. John Skinner. (1s. 6d. Cambridge University Press.)

One of a series of texts in which the revised version is given with notes. The introduction is simply and clearly written, and the sectional headings to the text very helpful.

MATHEMATICS.

The Teaching of Arithmetic. By David Eugene Smith, Professor of Mathematics in Teachers College, Columbia University. (4s. 6d. Ginn.)

Gives a short summary of the development and history of the science, the reasons for teaching it, and the subject-matter that may properly be selected for school purposes. The remarks generally are brief and to the point. Indiscriminate methodizing is severely criticized. "No extreme of method," the author remarks, in outlining certain great principles essential to the work, "should be adopted by any school or teacher, but the best of every method should be known as far as possible by all." This and many other relevant and important topics come in for discussion. The last few chapters of the book give in outline the work of the first eight school years in America and afford an opportunity of comparing American and European progress in this direction. That America apparently lags after the first few years is, to some extent, put down to a nervous desire for change, tending to "destroy courses of study, accepted traditions, methods and ideals," a state of things contrasting unfavourably with the European tendency to retain "what has been proved by experience to be of worth." The book is written more especially for the benefit of American teachers, but is universally readable. Those who are sufficiently interested to study the problem further may find the lists of reference books appended at the end of each chapter of some assistance.

Applied Mechanics for Engineers. By J. Duncan, M.I.M.E., Head of the Department of Civil and Mechanical Engineering at the Municipal Technical Institute, West Ham. (8s. 6d. net. Macmillan.)

The book divides itself into two sections, materials and structures, machines and hydraulics. Special attention is paid to the practical side of the work, many suggestions being made in each section as to suitable experiments in illustration of the theoretical principles involved. The mathematics throughout is comparatively simple and graphical processes are made considerable use of. In fact the author explains in the preface that "Students able to integrate $x^n dx$, and to differentiate x^n, $\sin x$, and $\cos x$, will be able to understand practically the whole volume." For students in technical institutes and schools the material selected and the treatment adopted form a happy combination, and the book will be found handy for preparation for most public examinations which demand a knowledge of this subject. The book is illustrated with numerous diagrams, and many exercises are provided.

SCIENCE.

Chemical Calculations. By H. W. Bausor, M.A. (2s. University Tutorial Press.)

In twelve concise chapters the elements of chemical calculation are clearly explained and suitably illustrated by numerous and well chosen model examples. About two hundred representative problems

have been specially compiled by the author, the adoption of whose book, especially in the upper forms of schools, in technical institutes, and by students in college, should be extensive. As a textbook it does not, however, possess any special feature to distinguish it from others of its kind.

Chemical Calculations (Advanced Course). By H. W. Bausor, M.A. (1s. University Tutorial Press.)

As a continuation of the author's "Chemical Calculations" (*vide supra*), problems relating to quantitative organic analysis, molecular weight determination in solution, mass action, and thermochemistry are treated on similar lines—one might have wished rather more exhaustively. The chapter on thermochemistry is particularly good.

The Elements of Chemistry. By H. Ll. Bassett, B.A., B.Sc. (4s. 6d. Crosby Lockwood.)

We live in an age of "tabloids." Here we have the elements of general, physical, inorganic, and organic chemistry, and of practical chemistry, including qualitative and quantitative analysis, condensed in a volume of 368 pages. Prof. W. J. Pope, M.A., F.R.S., of Cambridge, who contributes an introduction, remarks that "superfluous experimental detail and refinements of theoretical treatment are alike excluded, so that a clear presentment of the subject may result." The first part (General and Physical) contains as much theoretical information as can be concentrated in six chapters; in Part II (Inorganic) the matter is arranged according to the periodic system. Parts III (Organic) and IV (Practical) call for little comment, except that they share the general tendency towards dogmatism and superficiality exhibited by the book as a whole. On the other hand, the matter included is sound chemistry and is both explicit and pertinent. The author's statement that medical students usually find themselves in a peculiar position with regard to ordinary textbooks is substantially correct, and the present volume, which includes all the chemistry necessary for the Conjoint Board and First Medical examinations, should prove of particular value to such as well as to students of other branches of science who wish to attain a general "working" knowledge of elementary chemistry.

An Introduction to the Study of Organic Chemistry. By H. T. Clarke, D.Sc., F.I.C. (6s. 6d. Longmans.)

The author, in writing this textbook to meet the new (1912) syllabus of the Lower Examination of the Board of Education in Organic Chemistry, has adopted an aspect of symmetry and homogeneity rather than the practical point of view. In fact, he puts forward two cogent reasons for his deprecation of the latter of these "two distinct and incompatible systems": (1) that, in using such a book, the beginner is apt to lose the thread of the argument in a wealth of facts, and (2) that there is a tendency to memorize practical details in order to answer questions involving a knowledge of these without gaining the necessary experience in laboratory work. It follows, therefore, that the course of lectures to which this volume is used as an adjunct must be fully experimental in character, and that the student, in his laboratory work, must make use of an essentially *practical* textbook. Before discussing methods of purification and analysis and the determination of molecular weights, a certain insight is given into compounds derived from ethyl alcohol, on the assumption that it is illogical to discuss the former until the student has a certain familiarity with the nature and properties of organic substances. To review the reactions of *keten* at so early a stage seems, however, open to criticism. As a whole, and within the limits specified, the book produces a very favourable impression.

PUBLICATIONS RECEIVED.

EDUCATION.

The Montessori Manual. By Dorothy Canfield Fisher. Constable, 4s. 6d. net.

The Montessori Manual. By Dorothy Canfield Fisher. Kegan Paul, 5s. net.

Medical Notes for School Teachers. By C. W. Hutt. E. Arnold, 1s. net.

A Survey of Elementary English Education. By E. B. R. Prideaux. Blackie, 2s. net.

Educative Toys. By J. J. Findlay and Miss K. Steel. Blackie, 1s. 6d. net.

The Young Teacher's Primer. By J. S. Davis. Blackie, 1s. net.

Handbook of Practice for Teachers: Practical Directions for Management and Instruction. By Charles A. McMurry. Macmillan, 2s. 6d. net.

An Introduction to Experimental Psychology in Relation to Education. By C. W. Valentine. Clive, 2s. 6d.

Sense-Plays and Number-Plays: for School and Nursery. By F. Ashford. Harrap, 1s. 6d. net.

CLASSICS.

Euripides: Heracles. With Introduction and Notes, by O. R. A. Bryde. Clarendon Press, 2s. 6d.

Olim: Ludi Scaenici. By E. Ryle. Bell, 1s.

Proceedings of the Classical Association. January 1914, Volume XI. With rules and list of members. Murray, 2s. 6d. net.

FRENCH.

Cours Français du Lycée Perse. Deuxième Partie. Par L. G. von Glehn et L. Chouville. Heffer, 1s. 6d.

Blackie's Copyright French Texts.—Légendes de Noël. Par G. Lenotre. Notes, exercises, and French-English vocabulary, by J. S. Norman and Charles Robert-Dumas. 10d.

Pitt Press Series.—La Jeunesse de Cyrano de Bergerac. By H. De Gorsse and J. Jacquin. Edited, with Notes and Vocabulary, by H. A. Jackson. 3s.

Siepmann's French Series.—Histoire d'un Conscrit, 2s. 6d.; Word and Phrase Book, 6d.; Key to Appendixes, 2s. 6d. net. Macmillan.

Rivingtons' Single Term Readers. Term IV. By B. Minssen. 1s.

Le Français par l'Exemple et les Textes. By C. L. Albert Bonne. Rivingtons, 1s. 4d.

Oxford Junior French Series.—Contes de Guerre (1870). Par Guy de Maupassant. Adapted and edited, with Vocabulary, by J. G. Anderson. Clarendon Press, 1s. 6d.

Harrap's Modern Language Series.—(1) Ninette. Par A. Melandri. Introduction, Notes, Exercises, and Vocabulary by C. W. Bell. 1s. 3d. (2) Eugénie Grandet. By Honoré de Balzac. Abridged and edited, with Notes and Vocabulary, by A. G. H. Spiers. 2s.

A Reform First French Book: especially adapted to the use of adult students. By J. Stuart Walters. Mills & Boon, 1s.

Passages for Translation into French and German. Selected by G. G. Nicholson and C. J. Brennan. Milford, 3s. 6d.

GERMAN.

A Reform First German Book. By J. Stuart Walters. Mills & Boon, 3s.

Heath's Modern Language Series.—Geschichten und Märchen für Anfanger. Compiled and edited by Lillian Foster; with exercises and lists of words by G. W. Samson. 1s. 6d.

Oxford Junior German Series.—(1) Leodegar, Der Hirtenschüler (Villinger). Edited by C. W. Merryweather. (2) Till Eulenspiegel. Edited by M. L. Seebohm. Oxford University Press, 1s. 6d. each.

The Cambridge Modern German Series.—Der Tolle Invalide (Ludwig Achim von Arnim). Edited by A. E. Wilson. Cambridge University Press, 2s. 6d.

Direct German Course. By H. J. Chaytor. Clive, 2s. 6d.

WELSH.

The Tutorial Welsh Course. By William Davies and E. T. Griffiths. Part I, Southall, Newport, Mon. 1s. net.

ELOCUTION.

How to Speak and Read. By J. Bruce Alston. Blackie, 1s. 6d. net.

ENGLISH.

Oxford University Press.—(1) Dreamthorpe: Essays. By Alexander Smith. 1s. 6d. (2) Landor's Imaginary Conversations. 2s. 6d. (3) Plain Texts.—Macaulay's Frederick the Great. Paper, 6d.; cloth, 8d. (4) Macaulay's Frederick the Great. Notes by C. T. Atkinson. 2s. (5) Macaulay's Life of Oliver Goldsmith. Notes by C. B. Wheeler. 1s. (6) Macaulay's Life of John Bunyan. Notes by E. Maxwell. 1s. (7) Hyperion. By John Keats. Notes by Margaret Robinson. 2s.

Blackie's (1) English Classics: The Forsaken Merman and the Sick King in Bokhara (Matthew Arnold). 2d. (2) Large Type Supplementary Readers: Three Bad Pups. 4d. (3) Large Type Poetry Books. Junior, 6d.; Intermediate, 7d.; Senior, 8d.

English Literature for Schools.—The Early Life of Thomas de Quincey. Dent, 6d.

English Literature for Secondary Schools.—The Wanderings of Rama, Prince of India. Macmillan, 1s.

If. By Rudyard Kipling. Macmillan, 1d.

Oral Composition: a Textbook for High Schools. By Cornelia Carhart Ward. Macmillan, 4s. 6d. net.

Tennyson: Poems published in 1842. Introduction and Notes by A. M. D. Hughes. Clarendon Press, 4s. 6d.

Longmans' Classbooks of English Literature.—Little Women. 1s.

Elizabethan Literature. By John Mackinnon Robertson. Home University Library. Williams & Norgate, 1s.

Tennyson's Enoch Arden. Notes and introduction by Hugh Marwick. Clarendon Press, 1s.

Gray's English Poems. Edited by R. F. Charles. Cambridge University Press, 2s.

Bell's Reading Books.—The Last Days of Pompeii. Abridged, 1s.
The Rambler Travel Books.—The British Empire. Blackie, 9d.
The Children's Rossetti. Illustrated. Junior, 4d.; Intermediate, 5d.; Senior, 6d. Macmillan.
Revised English Course for English Students. By W. Wyatt Hayward. Mitchell, Buenos Aires.

HISTORY.

Outlines of Ancient History: From the Earliest Times to the Fall of the Roman Empire in the West, A.D. 476. By Harold Mattingly. Cambridge University Press, 10s. 6d. net.
Greek History for Schools. By C. D. Edmonds. Cambridge University Press, 5s. net.
Home University Library.—(1) Central and South America. By W. R. Shepherd. (2) The Alps. By Arnold Lunn. (3) The Renaissance. By Edith Sichel. Williams & Norgate, 1s. net each.
A History of Europe: From the German Invasions to the Great Renaissance. By W. O. Lester Smith. Dent, 2s.
A Constitutional History of England. By George Guest. Bell, 1s. 6d.
Bourbon and Vasa. A textbook of European History, 1610 to 1715, with summary of events immediately preceding. By J. H. Sacret. Clarendon Press, 4s. 6d.
The Making of the Roman People. By Thomas Lloyd. Longmans, 4s. 6d. net.
A History of Modern Europe: From the Middle of the Sixteenth Century. By John E. Morris. Cambridge University Press, 3s. 6d. net.
English History in Contemporary Poetry.—No. V, The Eighteenth Century. By Miss C. L. Thomson. Bell, 1s. net.
The Story of Alfred the Great. By A. E. McKilliam. Harrap, 1s.
Chambers's Dramatic History Readers. (55 B.C. to 1066 A.D.) By William Hislop. 1s.

GEOGRAPHY.

A Little Book on Map Projection. By Mary Adams. Philip, 2s.
The Pupils' Classbook of Geography. The British Isles. By Ed. J. S. Lay. Macmillan, 6d.
Cambridge County Geographies.—(1) Glamorganshire. By J. H. Wade. (2) Durham. By W. J. Weston. Cambridge University Press, 1s. 6d. each.
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(1) *To write on one side only of the paper.*

(2) *To avoid putting more than one piece of work on a single sheet of paper.*

(3) *To sign each separate piece of work.*

14609. (R. C. Archibald, M.A., Ph.D.)—Prove the following relations between the cardioid and the three-cusped hypocycloid or tricusp:—(i) The envelope of the parabolas, with foci on a cardioid and always tangent to two fixed lines drawn at pleasure through its cusp, is a tricusp. (ii) A cusp S of a tricusp and its opposite vertex V are joined. Any tangent to the tricusp intersects this line SV in X. With centre V and radius VX, a circle is described which cuts the tangent again in P. The locus of P is a cardioid.

Solution by the Proposer *and* W. N. Bailey.

(1) Let S_1, S_2 be two neighbouring points on the cardioid, cusp O, and PQ a common tangent of the parabolas, foci S_1 and S_2, which meets the fixed lines at P and Q.

Then S_1 and S_2 must lie on the circle OPQ. Hence the required envelope is the envelope of the line joining the points where the fixed lines meet a circle which passes through O and touches the cardioid.

Now the centre C of this circle lies on a fixed circle through O (see, *e.g.*, Question 17643), and therefore K, the point of intersection of the lines through P and Q perpendicular to OP, OQ, also lies on a fixed circle through O. Let this circle meet OP, OQ at A, B. Then PQ is a pedal line of the triangle AOB, and therefore envelopes a tricusp.

(2) Let V be a fixed point on a circle, and A a variable point, VW being the diameter through V. Draw PAX through A, meeting VW at X, so that $\angle XVA = \angle VXA = \frac{1}{2}\theta$, and $VP = VX$. Then PAX envelopes a tricusp, vertex V, with a cusp S on VW. (Question 17317.)

But $$\angle PVW = \pi - \theta,$$
and $$VP = VX = 2VA\cos\tfrac{1}{2}\theta = 2VW.\cos^2\tfrac{1}{2}\theta = VW(1+\cos\theta),$$
so that the locus of P is a cardioid.

Note on Question 17708.

By W. J. Martyn, M.A.

The number of terms in a zero-axial determinant of the n-th order may be shown to be *subfactorial* n.

Let P_n be the number of terms in such a determinant, and Q_n the number of terms in a determinant of order n, zero-axial except that the top left-hand constituent of the principal diagonal is not zero. Then the co-factor of any one of the constituents of the top row of the zero-axial determinant is a determinant in which all the rows, except one, contain a zero constituent. If we permute the rows, the co-factor can be expressed as a determinant of the second type described above.

Hence $$P_n = (n-1)\,Q_{n-1}.$$

Similar reasoning applied to the co-factor gives
$$Q_{n-1} = P_{n-2} + (n-2)\,Q_{n-2}.$$

From these two relations we deduce
$$P_n = (n-1)(P_{n-1} + P_{n-2}),$$
i.e., $$P_n - nP_{n-1} = -[P_{n-1} - (n-1)\,P_{n-2}],$$
This leads to $$P_n - nP_{n-1} = (-1)^n,$$
i.e., $$P_n/n! - P_{n-1}/n-1! = (-1)^n/n!;$$
from which we finally obtain
$$P_n = n!\left\{1 - 1/1! + 1/2! - 1/3! + \ldots + (-1)^n/n!\right\}.$$

17731. (S. Krishnaswami Aiyangar, B.A.)—If S_r is the sum of the squares of the reciprocals of the first r odd numbers, prove that
$$\frac{S_1}{3^2} + \frac{S_2}{5^2} + \frac{S_3}{7^2} + \ldots + \frac{S_n}{(2n+1)^2} + \ldots = \frac{\pi^4}{384}.$$

Solution by A. M. Nesbitt, M.A., *and* T. P. Trivedi, M.A.

The Question, which is identical with Question 8, chap. xxiii, of Todhunter's *Trigonometry*, may be solved as follows.

Let Σ be the value required; and let $S \equiv S_\infty$; so that $S = \pi/8$. Then we have

$$\Sigma = S - S_1 + \frac{1}{3^2}(S-S_2) + \frac{1}{5^2}(S-S_3) \ldots$$

$$= S^2 - \left[1 + \frac{1+1/3^2}{3^2} + \frac{1+1/3^2+1/5^2}{5^2} + \ldots\right]$$

$$= S^2 - \Sigma - \left[1 + \frac{1}{3^4} + \frac{1}{5^4} + \ldots\right]$$

$$2\Sigma = \pi^4/64 - \pi^4/96 \quad \text{or} \quad \Sigma = \pi^4/384.$$

14470. (J. J. Barniville, B.A.)—Having $u_{n-1} + u_{n+1} = 5u_n$, prove that

$$\frac{1}{1+1} + \frac{1}{4+1} + \frac{1}{19+1} + \frac{1}{91+1} + \ldots = \frac{\sqrt{21}}{6},$$

$$\frac{1}{1+4} + \frac{1}{4+4} + \frac{1}{19+4} + \frac{1}{91+4} + \ldots = \frac{\sqrt{21}}{12},$$

$$\frac{1}{4+5} + \frac{1}{7+5} + \frac{1}{31+5} + \frac{1}{148+5} + \ldots = \frac{7+3\sqrt{21}}{90},$$

$$\frac{1}{7+5} + \frac{1}{4+5} + \frac{1}{13+5} + \frac{1}{61+5} + \ldots = \frac{7+2\sqrt{21}}{60},$$

$$\frac{1}{2+5} - \frac{1}{5+5} + \frac{1}{23+5} - \frac{1}{110+5} + \ldots = \frac{1}{14},$$

$$\frac{1}{1+1} - \frac{1}{6-1} + \frac{1}{29+1} - \frac{1}{139-1} + \ldots = \frac{\sqrt{21}}{14}.$$

Solution by the Proposer.

Starting with the series $2, \sqrt{7}, 5, 4\sqrt{7}, 23, 19\sqrt{7}, \ldots$,

whose scale is $\quad u_{n-1} + u_{n+1} = \sqrt{7}.u_n$,

we have $\left(\frac{\sqrt{7}}{2} - \frac{2}{\sqrt{7}}\right) + \left(\frac{2}{\sqrt{7}} - \frac{\sqrt{7}}{5}\right) + \left(\frac{\sqrt{7}}{5} - \frac{5}{4\sqrt{7}}\right) + \ldots = \frac{\sqrt{3}}{2}$,

and $\left(\frac{5}{\sqrt{7}} - \frac{\sqrt{7}}{5}\right) + \left(\frac{\sqrt{7}}{2} - \frac{5}{4\sqrt{7}}\right) + \left(\frac{2}{\sqrt{7}} - \frac{4\sqrt{7}}{23}\right) + \ldots = \frac{3\sqrt{3}}{2}$.

Hence $\quad \frac{1}{2} + \frac{1}{5} + \frac{1}{20} + \frac{1}{92} + \ldots = \frac{1}{2}\sqrt{\frac{7}{3}}$

and $\quad \frac{1}{5} + \frac{1}{8} + \frac{1}{23} + \frac{1}{95} + \ldots = \frac{1}{4}\sqrt{\frac{7}{3}}$.

Also $\quad \frac{1}{u_0u_1} + \frac{1}{u_1u_2} - \left(\frac{1}{u_1u_2} + \frac{1}{u_2u_3}\right) + \ldots = \frac{1}{2\sqrt{7}}$;

whence $\quad \frac{1}{7} - \frac{1}{10} + \frac{1}{28} - \frac{1}{115} + \ldots = \frac{1}{14}$.

These are series (1), (2), and (5) of the question.

Their scale is $\quad u_0 - 6u_1 + 6u_2 - u_3 = 0$.

Similarly, from the series $1, \sqrt{7}, 6, 5\sqrt{7}, 29, 24\sqrt{7}$, we get

$$\frac{1}{4-1} + \frac{1}{19-1} + \frac{1}{91-1} + \frac{1}{436-1} + \ldots = \frac{7-\sqrt{21}}{6}.$$

(3) and (4) are parts of a complete series whose sum is $\frac{1}{15}\sqrt{21}$. This can be deduced from the series

$$\ldots 11, 2\sqrt{7}, 3, \sqrt{7}, 4, 3\sqrt{7}, 17, \ldots$$

(continued both ways).

(6) may be deduced from the series

$$2, \sqrt{3}, 5, 6\sqrt{3}, 23, 29\sqrt{3}, \ldots,$$

whose scale is $\quad u_n + \sqrt{3}u_{n+1} = u_{n+2}$.

Also, from the series $1, \sqrt{3}, 4, 5\sqrt{3}, 19, 24\sqrt{3}, \ldots$, we get

$$\frac{1}{6+1} - \frac{1}{29-1} + \frac{1}{139+1} - \frac{1}{666-1} + \ldots = \frac{\sqrt{21}-3}{14}.$$

17689. (C. M. Ross, M.A.)—If $F(x, y, z)$ be a homogeneous function of x, y, z which becomes $\phi(u, v, w)$ by the elimination of x, y, z by means of the equations

$$\partial F/\partial x = u, \quad \partial F/\partial y = v, \quad \partial F/\partial z = w;$$

prove that $\quad (\partial\phi/\partial u)/x = (\partial\phi/\partial v)/y = (\partial\phi/\partial w)/z$.

Solution by W. J. Martyn.

If k is the degree of the homogeneous function F, Euler's theorem gives $\quad xu + yv + zw = kF$.

Differentiating this equation with regard to x, we obtain

$$u + x(\partial u/\partial x) + y(\partial v/\partial x) + z(\partial w/\partial x) = ku,$$

or

$$\left.\begin{aligned} x(\partial u/\partial x) + y(\partial v/\partial x) + z(\partial w/\partial x) &= (k-1)u \\ \text{Similarly we obtain} \\ x(\partial u/\partial y) + y(\partial v/\partial y) + z(\partial w/\partial y) &= (k-1)v \\ x(\partial u/\partial z) + y(\partial v/\partial z) + z(\partial w/\partial z) &= (k-1)w \end{aligned}\right\} \ldots\ldots\ldots (1).$$

$$\left.\begin{aligned} \text{Again, } u &= \partial F/\partial x = \partial\phi/\partial u.\partial u/\partial x + \partial\phi/\partial v.\partial v/\partial x + \partial\phi/\partial w.\partial w/\partial x \\ v &= \partial F/\partial y = \partial\phi/\partial u.\partial u/\partial y + \partial\phi/\partial v.\partial v/\partial y + \partial\phi/\partial w.\partial w/\partial y \\ w &= \partial F/\partial z = \partial\phi/\partial u.\partial u/\partial z + \partial\phi/\partial v.\partial v/\partial z + \partial\phi/\partial w.\partial w/\partial z \end{aligned}\right\} \ldots (2).$$

The solution of the sets (1) and (2) for x, y, z and $\partial\phi/\partial u$, $\partial\phi/\partial v$, $\partial\phi/\partial w$ respectively, evidently gives

$$\frac{\partial\phi/\partial u}{x} = \frac{\partial\phi/\partial v}{y} = \frac{\partial\phi/\partial w}{z} = \frac{1}{k-1}.$$

17740. (W. L. Marr.)—If

$$\lambda = \tfrac{1}{3}(B-C), \quad \mu = \tfrac{1}{3}(C-A), \quad \nu = \tfrac{1}{3}(A-B),$$

where A, B, C are the angles of the triangle of reference; show that the line $\quad \alpha\sin(\lambda+\epsilon) + \beta\sin(\mu+\epsilon) + \gamma\sin(\nu+\epsilon) = 0$

is inclined at an angle ϵ to the line

$$\alpha\sin\lambda + \beta\sin\mu + \gamma\sin\nu = 0.$$

Show also that the line

$$\alpha\sin(\lambda+\epsilon) + \beta\sin(\mu+\epsilon+\tfrac{2}{3}\pi) + \gamma\sin(\nu+\epsilon+\tfrac{4}{3}\pi)$$

is inclined at an angle ϵ to the line

$$\alpha\sin\lambda + \beta\sin(\mu+\tfrac{2}{3}\pi) + \gamma\sin(\nu+\tfrac{4}{3}\pi) = 0.$$

ϵ is any angle.

Solution by F. Glanville Taylor, M.A.

(1) The lines are $\quad \Sigma\alpha\sin\lambda + k\Sigma\alpha\cos\lambda = 0 \ldots\ldots\ldots\ldots$ (i),

where $k = \tan\epsilon$ and 0. Now, for the circular points, we have

$$\beta/\gamma = -\exp(\pm Ai); \text{ and similarly for } \gamma/\alpha, \alpha/\beta.$$

Hence we may write, for these points,

$$\alpha : \beta : \gamma = \exp(\pm\lambda i) : \exp(\pm\mu_2 i) : \exp(\pm\nu_1 i) \ldots\ldots\ldots \text{(ii)},$$

where, generally, $\quad x_\nu = x + \nu.2\pi/3$.

Now, if $k = \pm i$, (i) becomes

$$\Sigma\alpha\exp(\mp\lambda i) = 0 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{(iii)}.$$

This is satisfied by (ii), since

$$1 + \exp(\pm 4\pi/3) + \exp(\pm 2\pi/3) \equiv 0.$$

Hence $k = \pm i$ gives the isotropic lines; also the cross ratio of a pencil of 4 lines is $(k_1-k_2)(k_3-k_4)/(k_1-k_4)(k_3-k_2)$, and putting $k_1 = i$, $k_2 = \tan\epsilon$, $k_3 = -i$, $k_4 = 0$,

$$(k_1k_2k_3k_4) = \exp(2\epsilon i),$$

showing that ϵ is the angle between the lines given.

(2) The lines are

$$\alpha\sin\lambda + \beta\sin\mu_1 + \gamma\sin\nu_2 + k(\alpha\cos\lambda + \beta\cos\mu_1 + \gamma\cos\nu_2) = 0 \ldots \text{(iv)},$$

where $k = \tan\epsilon$ and 0, as before. Put $k = \pm i$, and (iv) becomes

$$\alpha\exp(\mp\lambda i) + \beta\exp(\mp\mu_1 i) + \gamma\exp(\mp\nu_2 i) = 0,$$

which can be shown to be the isotropic lines, &c.

17787. (Professor J. C. Swaminarayan, M.A.)—Find the locus of the intersection of tangents drawn from two fixed points $(g, 0)$, $(g', 0)$ to the family of circles $x^2 + y^2 - c = 2\lambda y$, λ being the variable parameter.

Solution by C. W. Adams, M.A., *and* C. M. Ross, M.A.

If (X, Y) be the point of intersection, the line joining it to $(g, 0)$, that is, $Y(x-g) = y(X-g)$ must touch the circle. Therefore the equation $x^2 + Y^2(x-g)^2/(X-g)^2 - c - 2\lambda Y(x-g)/(X-g) = 0$ must have equal roots in x.

The condition for this may be written

$$g^2(c + 2\lambda Y - Y^2) - 2gX(c + \lambda Y) + cX^2 + cY^2 + \lambda^2Y^2 = 0.$$

The roots of this equation must be g and g'; so

$$2X(c + \lambda Y)/(g+g') = (cX^2 + cY^2 + \lambda^2Y^2)/gg' = c + 2\lambda Y - Y^2.$$

Eliminating λ and writing s for $g+g'$ and p for gg', we get for the required locus,

$$c(x^2 - sx)^2 + (c+p)(x^2-sx)(y^2+c) + \tfrac{1}{4}s^2(y^2+c)^2 = 0,$$

which is a pair of conics, each passing through $x = 0$, $y = \pm\sqrt{(-c)}$, and having the x-axis as axis.

17788. (Professor Cochez.)—Etant données deux droites Ox, Oy, une circonférence assujettie à passer par O a son centre M variable

(*Continued on page* 442.)

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sur Ox. Trouver le lieu du point de contact de la circonférence tangente à la circonférence M et aux droites Ox, Oy.

Solution (I) *by* R. F. Davis, M.A.; (II) *by* C. M. Ross, M.A.

(I) Let U be the point of contact, the common tangent to the circles at U meeting the rectangular axes Ox, Oy in P, Q respectively.

Then it will be found that the triangle OPQ is of fixed species, having OP : OQ : PQ = 4 : 3 : 5. Therefore the locus of U is a fixed straight line through O making an angle $\tan^{-1}(1/2)$ with Ox.

(II) For the sake of simplicity suppose that Ox, Oy are at right angles. Let N be the centre of the circle which touches the circle M and the lines Ox, Oy, and P the point of contact of the circles. Suppose h is the radius of the second circle, while r is the radius of the first circle. Then

$$(h+r)^2 = (h-r)^2+h^2, \quad i.e., \quad 4hr = h^2 \quad \text{or} \quad 4r = h \quad \ldots \text{(i)}.$$

Again, if (x, y) is the point P,

$$h/y = (h+r)/r \quad \text{and} \quad (h-r)/(x-r) = (h+r)/r \quad \ldots\ldots \text{(ii)}.$$

From (i) and (ii),

$$4r/y = 5r/r = 5 \quad \text{and} \quad 3r/(x-r) = 5,$$

whence $\quad 5y = 4r \quad$ and $\quad 3r = 5x-5r$;

therefore $x = 2y$ is the locus of P.

17481, 17753, and **17790.** (C. E. Youngman, M.A.) — (17481.) Normals meeting at N and tangents meeting at T are drawn at any two points on a tricusp. Prove that the third normal from N is parallel to the third tangent from T.

(17753.) Three normals (or tangents) to the hypocycloid with cusps ABC meet at D, and three more meet at D′, the isogonal conjugate of D in ABC; prove that the six feet lie on a circle.

(17790.) From a point T three tangents and three normals can be drawn to a tricusp: the condition for their feet to be six points on a conic is that T be concyclic with the three cusps, or in line with two of them. In the first case the conic is two parallel straight lines, one a normal to the tricusp and the other a tangent. In the second case the conic goes through the third cusp and the centre.

Solution by W. N. Bailey.

Let the tricusp be generated by a circle of radius $\frac{1}{4}a$ rolling within a circle of radius $\frac{3}{4}a$, and let θ be the angle between the line of centres and the axis of x, a cusp being the origin and the line joining this cusp to the opposite vertex being the axis of x.

Then the equation of the tricusp is

$$x = at^2(t^2+3)/(1+t^2)^2, \quad y = 2at^3/(1+t^2)^2, \quad \text{where} \quad t = \tan\tfrac{1}{2}\theta.$$

The tangent at 't' is $y-tx+[at^3/(1+t^2)] = 0$ ..... (1),

and the normal at 't' is $x+ty = 3at^2/(1+t^2)$ ..... (2).

Hence the tangent and normal respectively pass through (ξ, η) if

$$t^3(a-\xi)+t^2\eta-t\xi+\eta = 0 \quad \ldots\ldots\ldots\ldots \text{(3)},$$

and

$$t^3\eta+t^2(\xi-3a)+t\eta+\xi = 0 \quad \ldots\ldots\ldots\ldots \text{(4)}.$$

Now suppose (3) and (4) have two roots in common, say, t_1 and t_2. Let t, T be the other roots of (3) and (4). Then

$$t_1+t_2+t = t_1t_2t \quad \text{and} \quad t_1t_2+\mathrm{T}(t_1+t_2) = 1.$$

It follows that $t\mathrm{T}+1 = 0$; and then from (1) and (2) it is evident that the tangent at 't' is parallel to the normal at T. This proves Question 17481.

The circle $a(x^2+y^2)+gx+fy+1 = 0$ meets the tricusp, where

$$a\,.\,a^2t^4(t^2+9)+g\,.\,at^2(t^2+3)(t^2+1)+f\,.\,2at^3(1+t^2)+(1+t^2)^3 = 0.$$

This is the same equation as the product of (3) and a similar equation in (X, Y) if

$$\left.\begin{aligned}
\eta\mathrm{Y}(aa^2+ga+1) &= a^2-a\mathrm{X}-a\xi+\xi\mathrm{X}\\
\eta\mathrm{Y}\,.\,2fa &= a\eta-\eta\mathrm{X}+a\mathrm{Y}-\xi\mathrm{Y}\\
\eta\mathrm{Y}(9aa^2+4ga+3) &= -a\xi+2\xi\mathrm{X}+\eta\mathrm{Y}-ax\\
\eta\mathrm{Y}\,.\,2fa &= a\eta-2\eta\mathrm{X}-2\xi\mathrm{Y}+a\mathrm{Y}\\
\eta\mathrm{Y}(3ga+3) &= 2\eta\mathrm{Y}+\xi\mathrm{X}\\
0 &= \xi\mathrm{Y}+\eta\mathrm{X}
\end{aligned}\right\} \ldots\ldots\ldots\ldots \text{(A)}.$$

Eliminating a, f, g from these equations, we get

$$\xi\mathrm{Y}+\eta\mathrm{X} = 0 \text{ (repeated)} \quad \text{and} \quad 2\xi\mathrm{X}-2\eta\mathrm{Y}-3a\mathrm{X}-3a\xi+\tfrac{27}{8}a^2 = 0 \quad \ldots\ldots\ldots \text{(5)}.$$

The first of equations (5) expresses the fact that the lines joining the origin to (X, Y) and (ξ, η) are equally inclined to the axis of x. The second of these relations gives, in conjunction with the first, a similar property for the other cusps. It follows that (ξ, η) and (X, Y) are isogonal conjugates with respect to the triangle formed by the three cusps.

Similarly the same property can be proved for the feet of the six normals from (ξ, η) and (X, Y).

This proves Question 17753.

It is easily seen from (A) that $a = 0$ if (ξ, η) is on the line at infinity and (X, Y) on the circle through the cusps.

For, let $\xi/\eta \to k$ as $\xi \to \infty$ and $\eta \to \infty$ in equations (A).

We get, for (5),

$$k\mathrm{Y}+\mathrm{X} = 0 \quad \text{and} \quad 2k\mathrm{X}-2\mathrm{Y}-3ka = 0,$$

so that the locus of (X, Y) is $2\mathrm{X}^2+2\mathrm{Y}^2-3a\mathrm{X} = 0$, the cusp-circle.

From (A) we get

$$a = 0, \quad f = 1/2\mathrm{Y}, \quad g = -\mathrm{X}/2\mathrm{Y}^2;$$

and the line $x-(\mathrm{Y}/\mathrm{X})y = 2\mathrm{Y}^2/\mathrm{X}$ is easily seen to be the normal at the point whose parameter is Y/X. Thus, the points of contact of the three tangents from any point on the cusp-circle lie on a straight line which is normal to the curve. Similarly, the feet of the normals from any point on the cusp-circle lie on a tangent to the curve.

The conic $ax^2+hxy+by^2+gx+fy+c = 0$ meets the tricusp where

$$aa^2t^4(t^2+3)^2+2ha^2t^5(t^2+3)+4ba^2t^6$$
$$+gat^2(t^2+3)(1+t^2)^2+2fat^3(1+t^2)^2+c(1+t^2)^4 = 0.$$

This equation is the same as the product of (3), (4), and pt^2+qt+c if eight equations hold.

Eliminating a, b, f, g, h from these, we get

$$q\xi\eta+c(\eta^2-\xi^2) = 0,$$
$$pa(8\xi-9a)+q\eta(8a-3\xi)+c(3\xi^2-3\eta^2-8a\xi+3a^2) = 0,$$
$$p\eta(8\xi-9a)-q(2\xi^2-2\eta^2-3a\xi)-3ca\eta = 0.$$

Eliminating p, q, c from these, we have, for the locus of (ξ, η),

$$(2\xi^2+2\eta^2-3a\xi)(8\xi-9a)(3\eta^2-\xi^2) = 0.$$

Hence (ξ, η) lies on the cusp-circle or is in line with two of the cusps.

If (ξ, η) lies on the cusp-circle, it has already been proved that the conic degenerates into two straight lines, a normal and a tangent, and from their equations they are seen to be parallel, both being parallel to $\xi x = \eta y$.

If $\xi = \frac{9}{8}a$, $\quad q = 0$ and $c = 0$, and $g = -\frac{3}{4}a\,.\,a$.

But the conic meets $y = 0$, where

$$ax^2+gx = 0, \quad i.e., \text{ where} \quad x(x-\tfrac{3}{4}a) = 0.$$

Hence the conic passes through the third cusp and the centre.

On finding the equation of the conic, it is seen to pass through (ξ, η) (that is, T), cuts orthogonally at T the line on which T lies, and has its axes fixed in direction (at 45° to the line on which T lies).

17732 (C. M. Ross, M.A.)—If c_r is the coefficient of x^r in $(1+x)^n$, then the coefficient of x^ny^n in the expansion of

$$(1+x)^n(1+y)^n(x+y)^n$$

is

$$c_0^3+c_1^3+c_2^3+\ldots+c_n^3.$$

Is it possible to deduce the actual value of the sum of the cubes of the coefficients of $(1+x)^n$?

Solution by T. P. Trivedi, M.A., LL.B.

The coefficient of x^ny^n may be considered to be obtained by taking x^p from the first bracket, y^{n-p} from the second, and $x^{n-p}y^p$ from the third, and multiplying their coefficients. It is obvious that p can have all values from 0 to n, both inclusive.

Thus the coefficient is

$$\sum_{p=0}^{p=n} c_p c_{n-p} c_p = \sum_{p=0}^{p=n} (c_p)^3.$$

Hence the result.

It is not possible to deduce the value of the series, as we cannot exhibit the coefficient of x^ny^n as a single term.

17791. (C. M. Ross, M.A.) — OC, OD are conjugate semi-diameters of an ellipse. Find the locus of the orthocentre of the triangle OCD.

Solution by E. R. Hamilton *and others.*

If eccentric angles of C, D are ϕ, $\phi+\pi/2$, equation of CM (drawn perpendicular to DO) is

$$ax/\cos\phi-by/\sin\phi = a^2-b^2 \quad \ldots\ldots\ldots\ldots \text{(1)},$$

and equation of DN (drawn perpendicular to CO) is

$$ax/\sin\phi+by/\cos\phi = -(a^2-b^2) \quad \ldots\ldots\ldots\ldots \text{(2)}.$$

The required locus has clearly, as equation, the eliminant of ϕ between (1) and (2), viz.,

$$(a^2-b^2)^2(a^2x^2-b^2y^2)^2 = 2(a^2x^2+b^2y^2)^3 \quad \ldots\ldots\ldots \text{(3)}.$$

QUESTIONS FOR SOLUTION.

17806. (*Communicated by* C. M. Ross, M.A.)—Prove that, when the two quadratics

$$a/(x-\alpha)+b/(x-\beta)+c/(x-\gamma)=0,$$
$$a'/(x-\alpha)+b'/(x-\beta)+c'/(x-\gamma)=0,$$

have a common root, the equation

$$(\beta-\gamma)/[(bc'-b'c)(x-\alpha)]+(\gamma-\alpha)/[(ca'-c'a\ (x-\beta)]$$
$$+(\alpha-\beta)/[(ab'-a'b)(x-\gamma)],$$

is a simple equation giving the common root. (Math. Trip., 1909.)

17807. (*Communicated by* H. R. Wales.)—Prove, geometrically, that if a line be drawn through a focus of a central conic making a constant angle with a tangent, the locus of the point of intersection is a circle.

17808. (S. Krishnaswami Aiyangar.)—If ρ_1 be the radius of curvature at any point of a cardioide, ρ_2 the radius of curvature of the corresponding point of its fifth negative pedal with respect to the pole, show that $24\rho_1^4\rho_2=8a^5$.

17809. (Professor J. C. Swaminarayan, M.A.)—If $(\alpha_0, \beta_0, \gamma_0)$ be the absolute trilinear coordinates of the centre of the conic

$$f(\alpha, \beta, \gamma)\equiv\Sigma ua^2+2\Sigma u'\beta\gamma=0,$$

prove that $$f(\alpha_0, \beta_0, \gamma_0)=-4\Delta^2 D/D_1,$$

where $D=\begin{vmatrix} u & w' & v' \\ w' & v & u' \\ v' & u' & w \end{vmatrix}$ and $D_1=\begin{vmatrix} u & w' & v' & a \\ w' & v & u' & b \\ v' & u' & w & c \\ a & b & c & 0 \end{vmatrix}$.

17810. (R. Vythynathaswamy, M.A.)—Show that an isogonal transformation can always be found which will carry three chosen points into three other chosen points, and that, in general, there are seven such transformations, real or imaginary.

17811. (C. M. Ross, M.A.)—(*a*) Eliminate x, y, z from the three equations $(x+y)(x+z)=bcyz$ .... (*b*) Eliminate a, b, c from $\Sigma x=0$, $\Sigma x^2/a=0$, $\Sigma ayz=0$.

17812. (Professor Cochez.) — D'un point M on mène trois normales MA, MB, BC à une parabole donnée. Trouver le lieu des points pour lesquels $AB^{-2}+BC^{-2}+CA^{-2}=\kappa^2$.

17813. (W. N. Bailey.)—From any point P on the circle of similitude of two circles X, Y, tangents are drawn touching X at A, B, and Y at C, D. PA and PB are such that they move continuously with P, and coincide when P is at either centre of similitude. Find the envelopes of AB and CD.

17814. (Professor Sanjána, M.A.)—Factorize completely—

$$45^{15}-1;\ 20^{25}-1;\ 6^{30}+1;\ 8^{30}+1;\ 10^{30}+1.$$

17815. (N. Sankara Aiyar, M.A.)—Construct, geometrically, a triangle, given the in-radius, circum-radius, and the difference between two angles.

17816. (Professor E. J. Nanson, M.A.)—The vertices of a given tetrahedron lie each on a given sphere. Under what conditions can a point rigidly attached to the tetrahedron describe a fifth sphere?

17817. (V. Ramaswami Aiyar, M.A.)—If $a, b, c, \ldots k, l$ be $(n+1)$ positive quantities in descending order of magnitude, show that

$$m(m-1)\ldots(m-n+1)a^{m-n}/n!\gtrless\Sigma a^m/\{\Pi(a-l)\}$$
$$\gtrless m(m-1)\ldots(m-n+1)l^{m-n}/n!$$

according as $m(m-1)\ldots(m-n+1)(m-n)\gtrless 0$.

17818. (A. M. Nesbitt, M.A.)—Prove that, for any value of λ, the ellipses $$x^2/(a+b\lambda)+y^2/(b+b\lambda)=1$$
and $$(x-l)^2/(\alpha\lambda+\beta)+y^2/(\alpha\lambda+\alpha)=1$$
will have double contact if

$$l^2\alpha\beta=(a\alpha-b\beta)(b-\alpha),$$

and contact of the third order if, in addition,

$$\lambda=(a-\beta)/(b-\alpha)-a/b-\alpha/\beta.$$

17819. (V. V. Satyanarayan.)—ABC is a triangle of constant perimeter, and BC is given in length. A is fixed. Find the locus of C when B moves (i) on a straight line, and (ii) on a conic.

17820. (The late R. Tucker, M.A.)—P is a point within a triangle. Find the Brocard angles of the triangles BPC, CPA, APB when P is (i) the orthocentre, (ii) the in-centre, (iii) the centroid.

17821. (The late J. Hammond, M.A.)—Give a geometrical proof of the identity $\Sigma\phi(d)=n$.

17822. (S. Narayanan, M.A.)—ABCD is a quadrilateral inscribed in an ellipse of focus S. Show that

$$SA\,.\,\triangle BCD+SC\,.\,\triangle ABD=SB\,.\,\triangle ACD+SD\,.\,\triangle ABC.$$

17823. (Professor R. Srinivasan, M.A.)—Show that

$$\int_0^1(\log x)^r x^{m-n}\,dx=\sum_{t=1}^{\infty}(-1)^r n^{t-1}\,\Gamma(t+r)/\{(m+t)^{t+r}\,\Gamma(t)\}.$$

17824. (C. H. Hardingham, M.A.)—In any triangle there are two sides differing by less than one-sixth of the perimeter. In any acute-angled triangle there are two differing by less than one-twelfth of the perimeter. Hence, find the ratios of the sides of the most scalene triangle (not obtuse-angled).

17825. (Lt.-Col. Allan Cunningham, R.E.)—Solve in integers—

$$\phi_5(x, y)+\phi_3(x, y)=\phi_5(x', y')+\phi_3(x', y')$$

where $$\phi_n(x, y)=(x^n+y^n)/(x+y).$$

Give the lowest numerical examples. [Identities excluded.]

17826. (R. S. Capon).—Areas $a_1, a_2, \ldots a_n$ of any shape are placed haphazard on a sphere. If each area is less than the area of the sphere, find the probable area of the sphere left uncovered.

17827. (W. N. Bailey.)—Through the vertices of a triangle ABC, lines are drawn intersecting in a point O, and cutting the opposite sides BC, CA, AB at D, E, F. Prove, without the use of any properties of conics, that the lines joining A, B, C to the mid-points of EF, FD, DE are concurrent.

17828. (R. S. Capon.)—n areas $a_1, a_2 \ldots a_n$ of any shape are placed at haphazard on a sphere. If each area is less than the area of the sphere, find the probable area of the sphere left uncovered.

17829. (*Communicated by* C. M. Ross, M.A.)—Prove that the value of the integral $\iiint\frac{dx\,dy\,dz}{xyz}$, taken throughout a volume bounded by six confocal quadrics, is

$$\begin{vmatrix} \log a_1/a_1' & \log b_1/b_1' & \log c_1/c_1' \\ \log a_2/a_2' & \log b_2/b_2' & \log c_2/c_2' \\ \log a_3/a_3' & \log b_3/b_3' & \log c_3/c_3' \end{vmatrix}$$

where a_1, b_1, c_1, &c. denote the semi-axes of the quadrics, and the axes of co-ordinates are the axes of the surfaces. (Trip., Part I, 1889.)

17830. (R. F. Davis, M.A.)—Prove that it is possible in two ways to shift without rotation a given triangle ABC into another position A'B'C' in the same plane in such a manner that the following six pairs of triangles are similar:—

BC'A, CAB'; CA'B, ABC'; AB'C, BCA';
B'CA', C'A'B; C'AB', A'B'C; A'BC', B'C'A.

Investigate other properties of the figure such as

$$BC'.CA'.AB'=B'C.C'A.A'B=abc.$$

Give a geometrical construction for the length and direction of the displacement AA'.

17831. (E. R. Hamilton.)—A large number, n, of equal particles are joined each to each by very small elastic threads, of coefficient λ and infinite elastic limit. If each particle repels any other with a force $f(r)$, discuss the figure and nature of equilibrium of the set.

17832. (J. Y. Hart, B.Sc.) — Prove that the function $\sum_{n=0}^{\infty}2^{-n}x^{3^n}$ exists only within a circle of radius unity and centre the origin.

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In consequence of the War, the Council have decided to cancel, for the present, the arrangements for Members' Meetings and for a Members' Dinner which were announced in the September number of "The Educational Times."

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For Syllabus, see page 448.

EXAMINATIONS.

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II. (*Oct.* 8.) *The Natural History of the Pupil.*—Child-study and its dangers: the living pupil here and now before the teacher: the "average" child, and the type: the "human" boy (and girl) as pupil: relation of age to development: description of various types of troublesome pupils: dullness and its manipulation: artificial stupidity: tests of intelligence: the precocious pupil and his treatment: aids towards putting ourselves in the mental attitude of our pupils: the "little man" fallacy.

III. (*Oct.* 15.) *Place and Function of Class Instruction.*—Class instruction always a compromise: an economic necessity: Dr. Montessori's views on the use of the class in instruction: advantages enjoyed by the private coach: compensations of the class teacher in respect of (*a*) mere instruction, and (*b*) real education: psychological nature of the class: general influence of collective psychology in modifying class management: what is implied in the *size* of a class: attempts of MacMunn and others to combine the advantages of class and individual instruction.

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VIII. (*Nov.* 19.) *Use of Libraries in School.*—Nature and function of school library: the economic aspect and the educational: differences between class library and school library: preliminary training of the pupils in the mere handling of books as books: the æsthetic and the didactic aims of book-using, and the correlation of these aims: special use of the reference library: rudimentary research: manipulation of catalogues and indexes: bibliographies and their uses: the best use of external libraries, particularly the ordinary public library.

IX. (*Nov.* 26.) *Written Exercises and their Correction.*—Need for a great deal of written work in school: yet certain experiments in Illinois prove possibility of excess: relation between form and matter: "having something to say and having to say something": present quarrel among teachers in America: every written exercise should be regarded as an exercise in composition and marked as such: teachers of other subjects must make themselves responsible for the correction of the English of their pupils: danger of wasting time in over-refined correction: need for conventionalised contractions: burden of actual *correction* to be thrown upon the pupil: teacher to limit himself to marking.

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XI. (*Dec.* 10.) *Experiment in School Work.*—Every intelligent teacher is experimenting all the time: clear distinction between *experience* and *experiment*: increase in deliberate experimenting of late years: justification of the suspicion the public shows of school experiments: the brass instrument experiment: motives of the experimenters: possibility of combining the advancement of the study of education with the promotion of the highest good of the individuals experimented upon: experimental pedagogy and its literature: need for "control" in school experiments: effect of experiment in increasing interest in school work.

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CONTENTS.

	Page
Leader: Schools and the War	451
Notes	452
Our Contributors—England's Hospitality—Schools Play their Part — Compulsion or Freedom? — Liberty in Education — Teachers of German Nationality—Salaries of Enlisted Teachers —Mr. Pease and the War—L.C.C. Lectures.	
Summary of the Month	454
Exercises for Teachers and Others. By Eustace Miles	455
Education and the War: Mr. Pease's Letter	456
The Lighter Side of Pedagogy	457
Poetry: Louvain	457
Correspondence	458
Spelling Reform and Peace—"Teuton" and "German."	
Current Events	458
College of Preceptors:	
Pass Lists of Candidates at Colonial and Foreign Centres	459
Pass List of Professional Preliminary Examination, September, 1914	460
Prize Competition	462
Sane Sex Teaching: VI, The Purpose of Sex. By Dr. C. W. Saleeby	463
Careers for Girls: VI, The Profession of Medicine. By Dr. Jane Walker	464
Education at the British Association. By H. Bompas Smith	466
Montessorism in Secondary Schools. By Norman MacMunn	467
A Holiday in France during the War. By W. Norton Thomas	470
Reviews	471
The Young Teacher's Primer (Davis); Educative Toys (Findlay and Steel); A Survey of Elementary English Education (Prideaux); The Montessori Manual (Fisher); Revised Suggestions for the Teaching of Geography (Board of Education); The Nature and First Principle of Taxation (Jones).	
General Notices	474
Publications Received	475
Mathematics	476

The Educational Times.

SCHOOLS AND THE WAR.

During the past month there has been little educational news of a political or administrative character. In Parliament education has come under discussion only in reference to schools requisitioned by the military authorities, the feeding of children, or the conditions under which leave of absence may be granted to teachers. The Board of Education have issued circulars; but these have either dealt with the war or have announced the postponement of expected changes. For the time everything is dominated by the war. Schools feel it in the absence of teachers and in the lack of material. It may come as a surprise in many quarters to learn how much of the school equipment is manufactured in Germany. But the shortage of staff and the lack of tee-squares will not prevent the schools from continuing to work steadily with mutual goodwill. "Do the next thing" is a valuable motto to recall in this emergency—not to vapour because one cannot do the brilliant or the outstanding thing. We know one head master who was keenly anxious to enlist, but was dissuaded by his governors on the ground that he was doing more useful work in keeping the school together. No one has a right to blame another for not enlisting. Everyone is animated by the desire to help the country, and there are many ways in which help can be given. Each must be his own judge. The time may come when it will be the clear duty of every able-bodied man to take up arms, and when the conduct of the services necessary to the health of the community will be left to women, children, and old men. But that time has not yet come. At present our duty is to carry on the schools with as little deviation from the ordinary rule as possible.

In two special ways the schools have now an opportunity that must not be neglected. They must give their pupils the facts that have led up to the war, and they must learn and teach the laws of evidence. Everyone, even the youngest in our communities, reads or hears the news given in the daily papers. It is a bewildering mass, that needs a clear head if the approximate truth is to be discovered. The daily press is not a safe guide, because the facts are necessarily scattered, and need a capable brain to place them in due proportion. The weekly papers are sounder in this respect; and the monthlies, perhaps, best of all. October will see, among the more important monthlies and quarterlies, several articles on the causes of the war that may be read with profit. There are Sir Edward Grey's White Paper and Sir Maurice de Bunsen's report; these give the essential bedrock of the facts. Mr. Asquith's speech at the Guildhall has been reprinted, and can be obtained at a trifling cost. Such publications must be studied carefully by teachers, who must make sure that their own minds are clear about the facts. Then, and then only, the teacher will be able to answer questions, and to guide the inevitable discussions that will take place in the classroom.

It is not suggested that an official account of the reasons for the war should be laid down as an article of faith to be accepted by every pupil under penalty of being charged with a want of patriotism. This is the German method, which has produced such disastrous signs of German culture in Belgium and France. The opinion is held in some quarters, quite honestly, that the war might have been avoided by diplomacy differently conducted. The more general view is that on the Continent the development of armed force had reached such a pitch that an outbreak was inevitable, and that Germany always intended it to be so. If the teacher is to become familiar with the English version of the causes of the war, none the less must he also study the news that comes from Berlin. He must take note that the same charges are there made against us that we bring against Germany. We must learn to distinguish between false and genuine news: between real opinion and artificially manufactured

views. Some of the news from Berlin we know to be untrue. London has not yet been bombarded, and King George has not yet sued for peace. We must, after careful study, give our pupils what we believe to be the facts, and we must be prepared to listen to what may seem to us mistaken views; and beyond this we must do our best to enable our pupils to weigh evidence and balance probability. It is natural to believe what we want to believe; and a shred of argument in favour of a preconceived opinion is often allowed to outweigh a mass of unpalatable evidence on the other side. In the dispassionate history lesson we may calmly consider the pros and cons of the policy of George III; it is less easy to be dispassionate to-day. But the need is quite as great. We believe that never has England entered upon a war with cleaner hands. She seeks no aggrandizement, but only to protect herself and other countries from the menace of an overweening bully. We believe that, however great the distaste of many of us for war, and however much we dread its effect on the character of the race, yet that now it has been forced upon us we shall continue to the end, whatever sufferings lie before us. We do not wish to force this view ready-made upon the children; but it is our duty to give them such information and such guidance that they may not form a false view through ignorance of facts or of the value of evidence.

There is one more duty laid upon teachers: this is to maintain, and to try to get their pupils to maintain, a sympathetic attitude towards the unhappy Germans who are living among us. In another column we have spoken of the action of the University of Edinburgh in dismissing members of the staff because they are of German nationality. A later report shows that this action has been the subject of severe criticism. It is stated that Viscount Haldane, Lord Dunedin, and Mr. A. J. Balfour, who is Chancellor, and the professoriate generally have called in question the wisdom of the step. A similar difficulty will arise in many schools. Young people are often cruel through mere thoughtlessness and want of imagination. It is the duty of the teachers to help them to a more sympathetic judgment. German spies there have been and are; on the least suspicion the police should be informed, and the law left to take its course. But we try to heal the enemy that are wounded; we treat German prisoners generously. We ought not to be less generous to the non-combatant Germans, often English in feeling, who are living amongst us. It is the timid who bully; we are secure in the righteousness of our cause.

THE *Schoolmaster* says that a large party of German girls collected from various scholastic establishments over here sailed from Folkestone on Saturday, September 12. They were under the convoy of Mrs. Degenhardt, the wife of the well-known American financier, who carried with her letters from Lord Haldane and another peer. It is hoped that it will be possible to conduct the girls through in safety to Berlin. Mrs. Degenhardt also hopes to bring back with her on her return journey a similar number of English girls. We wish all success to this venture.

NOTES.

Our Contributors.

Two contributors who had promised important articles for this number have been unable to carry out their undertaking for reasons connected with the War. But our readers will find that several interesting subjects are dealt with by some of the best known writers of the day. Dr. Saleeby continues the "Sane Sex Teaching" series with an article in which he endorses the value of the previous articles in the series, and lays great stress on the need for self-control at puberty as the one means of properly using the new power that is then acquired. Only by becoming master of that power can a man win freedom. A second article from Dr. Saleeby in the November number will complete the series. Mr. Eustace Miles, a former master at Rugby School, begins a series of three articles on the value of body movements to sedentary workers in acquiring mental, moral, and muscular control. Dr. Jane Walker, a pioneer among medical women, writes on medicine as a career for girls. We have also secured the right to publish an important paper by Mr. Norman MacMunn, showing how the Montessori principles can be applied to elder children.

England's Hospitality.

ENGLISH people will never forget the heroic stand that the Belgian nation has made against our common enemy, nor the sufferings, too terrible to contemplate, that have been endured in the part of the country occupied by German troops. We can realize the destruction more vividly because we have all travelled in Belgium. Offers of hospitality to the dispossessed inhabitants have poured in freely, from country rectory, suburban villa, and cottage home; and now the nation has made itself responsible for the fugitives. Most fittingly the University of Oxford has offered a home to the professors of Louvain with their families, and Cambridge has offered to house the University. The newspapers have published a photograph of the main street of Dinant, mere piles of formless building materials, with the newly appointed German Director of Education driving through in a motor-car. One would judge from the photograph that there is no covered shelter left in which the Belgian children may learn the German language and German culture. The story of the heroic stand at Liége must become familiar to all our children.

Schools play their part.

THE schools have now opened for their winter term and work is going on, so far as possible, in the usual way. But there are probably few schools for boys in which the reality of the war is not brought home to the pupils by the absence of some of their number, masters and boys alike, who have volunteered for active service. The value of the O.T.C. is now apparent. Masters and instructors are qualified at once, and senior boys need only a few months'

additional training at Sandhurst to become officers. Many others are joining the ranks. Eton loses about fifty boys and seven masters; Uppingham sends six masters to the war, and also the sergeant-instructor, with his two assistants; Marlborough has lost between thirty and forty boys; and, so on, the list might be extended indefinitely. A splendid feeling has been aroused everywhere. The feeling is based upon the instinctive desire of Englishmen for fair play and the instinctive hatred of bullying. It shows that, in spite of the wealth and luxury of this generation, Englishmen have not lost the essential qualities that have made England a leader among nations.

Compulsion or Freedom?

THERE are not wanting at this crisis certain people who keep exclaiming that, if only England had adopted compulsory conscription, this war would not have taken place. Others make the war a text for preaching compulsory military training in all boys' schools. The greater part of the nation sees the fallacy of this argument. Germany is a military nation, organized to a pitch of military perfection that has never before been reached. England is not a military nation; yet the testimony is overwhelming that in the field English troops are superior to Germans. The reason lies precisely in the absence of compulsion in this country. The soul of a nation is crushed out by overmuch organization. The men who volunteer are either those who like danger and hardship or those who, while disliking an appeal to force, act from a sense of duty to themselves or to the nation. In either case the motive brings out the man's best powers and enables him to bear the strain of warfare. In a conscript army the unwilling recruits lower the fighting force of the whole. The war will teach us, if we needed to learn the lesson, the danger of soulless drill.

Liberty in Education.

A CORRESPONDENT writes to say that she "was very much interested in the article entitled 'Organized Freedom,'" and that she "would like to express her gratitude to Sir Philip Magnus and others who are working for the recognition of private schools and for the removal of disabilities that frequently hamper the work." In many quarters during the last few years the fear has been expressed lest in England the organization of secondary education should crush out its life. The need for organization has been urgently felt; the danger of over-organization is equally strong. Secondary education does require organization; at the present moment the State Department of Education admits official knowledge of about a thousand secondary schools out of the many thousands that exist. But within that organization the utmost liberty must be allowed for individual action. To effect this is the problem our educational administrators have to solve. It is clear that we shall no longer appeal to the example of Germany, whose educational organization has crushed the soul of the nation; and it is unlikely that we shall hear much more of the attempt to impose a uniform examination on secondary schools.

Teachers of German Nationality.

THE position of teachers of German nationality who have been engaged in education in this country is one of exceeding difficulty. If they retain their work in the schools, they are likely to suffer purgatory at the hands of thoughtless youth; if they resign, it will too often mean starvation, the workhouse, or a concentration camp. The University of Edinburgh, it is announced in the Press, have decided to dispense with the services of all members of the staff of German nationality. A later announcement shows that there is a strong feeling against this action, led by Lord Haldane and Mr. Balfour. We would put in a plea for sympathetic treatment wherever possible. Many of these teachers have lived in England for a long time, and often they are more anti-Prussian than the most ardent Englishmen, just because they know better than we do what Prussian tyranny means. As a nation, we are too generous to give way to spiteful reprisals on harmless non-combatants; and we remember that we are fighting the military spirit of Prussia, and not the Germany of Luther and Goethe.

Salaries of Enlisted Teachers.

MR. PEASE has answered in Parliament, most sympathetically, an inquiry as to the status and salaries of teachers who have enlisted. He points out that the power lies primarily with Education Committees and governing bodies; that the Local Government Board have issued a circular to Local Authorities advising them of their powers to grant leave of absence, to make allowances for salaries, and to pay substitutes; and adds that he will circulate his reply among education offices. We give the reply in full in another column. We also publish in the same column a letter from Sir Philip Magnus, writing as Chairman of the Secondary Schools Association, in which he suggests that governing bodies should pay the difference between the salary and the army pay, and should keep the post open. This is nothing less than reasonable. A man who enlists at the present moment is doing urgent work that the nation needs. It is not fair that his career should be ruined or that he should leave his family either in poverty or dependent upon charity. The Prime Minister, at the Guildhall, appealed as much to employers as to men. The latter, he said, ought to be assured of reinstatement in their position at the conclusion of the war.

Mr. Pease and the War.

EVERY teacher should read carefully and ponder over the circular letter from Mr. Pease which we print in another part of this issue. There is not a phrase that does not carry conviction, nor an opinion that does not arouse a supporting echo in the reader's mind. The President of the Board of Education says, with simple directness and

sincerity, what he feels and what he knows that teachers are feeling, though they may lack the words for expression. The teachers who remain in the schools have a great task before them—they can help "to maintain the balance and confidence of our life at home by seeing that the children of the country are happy and occupied, living their normal life, well tended and undisturbed." Teachers can see to it that the children retain their faith in the English character. Boastfulness can be checked, self-complacency avoided, and pettiness condemned. "In particular," says Mr. Pease, "the children can be reminded of our duty of courtesy and forbearance towards foreigners, of whatever race, living peaceably among us."

L.C.C. Lectures.

The London County Council issues as usual an attractive list of lectures for the forthcoming winter, designed to aid in the professional training of teachers. Many of the courses are conducted at University Colleges by professors and other recognized University teachers. Those of our readers who are engaged in a school working in connexion with the County Council will have received a list of lectures. We wish here to point out that the lectures are equally open to teachers in private schools situated within the Administrative County of London. All the courses are open, upon payment of a nominal registration fee, to teachers in private schools. Teachers outside the county may be admitted where there are vacancies in the classes at a fee of 7s. for each course. Any teacher in a private school is invited to apply to the Education Officer, L.C.C. Education Offices, Victoria Embankment, London, W.C., for a copy of the "Handbook of Classes for Teachers."

SUMMARY OF THE MONTH.

Teachers and the Army.

Sir Philip Magnus has sent the following letter to the press:—

Sir,—Inquiries having been received at the offices of the Secondary Schools Association as to what action should be taken by governing bodies of Secondary Schools in regard to teachers and officials who desire to serve in the Army or Navy during the present War, it has been suggested that governing bodies and school managers might indicate their willingness to pay any members of the staff who join the Colours a salary equal to the difference between their present salary and any military pay they may receive, and that their posts should, if possible, be kept open for them on their return. I venture to convey to you this suggestion, having regard to the resolution of the House of Commons on Thursday, September 10, on the motion of the Prime Minister, voting an additional 500,000 men for the Army.

Mr. Pease, questioned in Parliament on the same subject, gave the following reply:—

The conditions of employment and payment of teachers in Secondary and Elementary Schools are primarily a matter for the Local Education Authorities, Managers and Governing Bodies responsible for the school staffs. The Local Government Board have already issued a Memorandum to Local Authorities advising them of their powers to grant leave of absence to persons in their employment who have been called out or who volunteer with their permission for active service, to make allowances to them or persons authorized by them in respect of salary, and to pay temporary substitutes. I sincerely hope, and have no reason to doubt, that Local Education Authorities and other responsible bodies are treating their teachers liberally in this matter; and unless a general wish is expressed by them for guidance and advice I do not think there is any necessity for the steps suggested by the hon. member. I will, however, circulate this question and answer to all Local Education Authorities.

The Encouragement of Educational Experiments.

The Board of Education have power, under the Regulations for Secondary Schools, to make special grants for the encouragement of educational work of an experimental and pioneering kind. The Board have recently used this power in six cases. They have made a grant to a secondary school in Somerset for an experimental course in agriculture, where instruction is given in connexion with the practical working of a small holding. They have also supplied funds to a girls' secondary school in the suburbs of London for carrying out an experiment in the teaching of Botany. To the Manchester High School for Girls they have given aid for a course of secretarial work for girls intending to take up secretarial business on leaving school. At a secondary school in Yorkshire they have encouraged a course specially designed to meet the needs of boys and girls destined for rural or agricultural occupations. At the Perse School, Cambridge, they have aided experiments in a new oral method of teaching the classics. Finally, at a large secondary school in the North of England, the Board are helping an experiment in dealing with dull or retarded boys. The experiment takes the form of a modified curriculum, combined with a system of careful observation and record. This expenditure upon educational experiments is likely to be extended in the future to the work of elementary education.—Dr. M. E. Sadler, in *Indian Education.*

Training College Students and Military Service.

The Board have issued a circular on this subject, from which we take two salient paragraphs.

1. Students in training who are members of the Territorial Force and who have been called up for military service may be assured that the Board of Education will give special consideration and make special allowance to prevent prejudice to their future careers as teachers. It is not possible for the Board to indicate at this stage the precise method by which such cases will be dealt with, as this must depend on the length of time for which the Territorial Force continues to be mobilized, among other circumstances. The Board are, however, prepared to say that, if such students are able to return to their training colleges in January, the five terms for which these students would be in attendance at College would be reckoned as equivalent to a full two years' course. The students would in that case take their Final Examination at the ordinary time, and the Board would then, in considering the results of their examination, make full allowance for the fact of the term's absence. If it is necessary for the students now called up to be absent from the College for a longer period, it would probably be best that they should return to the College later to take a complete second year of training.

4. As regards students who are not already members of the Territorial Force and have no previous military training, and who now desire to volunteer, the Board will give sympathetic consideration to any representations made on their behalf when they return to civil life. It is desirable, however, that students in this position should be invited to consider how far their duty to their country calls on them individually to abandon for a time their preparation for the public service of teaching and to postpone their service in the schools which may be seriously understaffed in the near future. Any student who, after weighing these considerations, feels it to be his duty to volunteer for military service should be informed that he is quite free to do so. The Board would in any case allow the student to return to the College later to complete his interrupted course, and the College authorities would no doubt be willing to reserve a place for him.

Heroism.

Among the many stories of heroism that appear in the papers we take the following. The simple language of the description carries conviction. Gaston Bossier, private in the 6th Cuirassiers, known in civil life as Darino, lyrical artist of the Comédie Française, tells the following story of British heroism:—

We were together [he says], the Cuirassiers of France and the Royal Engineers of Great Britain; and we had retreated across the Aisne at Soissons. The Germans were advancing rapidly and were

trying to rush their masses across the bridge after us. The bridge had to be blown up. German sharpshooters were firing at us from a clump of trees, and their mitrailleuses were working havoc among the Allies. The whole place was an inferno of mitrailleuse and rifle fire. Into this "gate of Hell" your Royal Engineers suddenly went. A party of them dashed towards the bridge, and, although losing heavily, managed to lay a charge sufficient to destroy it, but before they could light the fuse they were all killed.

The narrator continues:—

Then we waited. Another body of these brave fellows had crept near the bridge and had taken cover, but the German sharpshooters had somehow got their range and were pouring in a deadly fire upon them. In the next few minutes we Frenchmen saw something which we shall remember to our dying day. One of the Engineers made a rush, alone, towards the fuse. He was killed before he had got half-way, but immediately he was down another man dashed up and ran on until he too fell dead, almost over the body of his comrade. A third, a fourth, a fifth attempted to run the gauntlet of the German rifle fire, and all of them met their deaths in the same way. Others dashed out after them, one by one, until the death toll numbered eleven. Then for an instant the German rifle fire slackened, and in that instant the bridge was blown up, for the twelfth man, racing across the space where the dead bodies of his comrades lay, lit the fuse and sent the bridge up with a roar as a German rifleman brought him down dead.

Regulations for Secondary Schools.

The Board have issued the following:—

In consequence of the War, certain changes in the Board's Regulations for Secondary Schools, which were dependent upon the provision of additional funds by Parliament, have been postponed.

The Regulations in force for the School Year 1913–14 are therefore continued for the School Year 1914–15.

Schools which have been receiving Grant under Article 41 or under Article 42 will, where no express notice to the contrary has been given, continue to receive Grant on the same terms for the Year 1914–15, if they continue to satisfy the Regulations in other respects.

Appointments.

Mr. S. H. Michell, B.A. (London), L.C.P., has been appointed Director of Technical Education at Cheltenham. Mr. Michell had been on the staff of the Woolwich Polytechnic for over eight years, at first as Senior English and History Master in the Secondary School, and later as Head Master of the Polytechnic Commercial School.

Mr. George Haydn Keeton, Head Master of Pocklington School, Yorks, has been appointed by Reading Town Council Head Master of Reading Royal Grammar School, at a salary of £1,000 a year, in succession to the Rev. W. C. Eppstein, now Assistant Master at Bradfield College. Mr. Keeton was at one time Assistant Master at Reading School, with which Kendrick Secondary (Boys') School is now to be amalgamated.

Mr. George Smith, Head Master of Merchiston Castle School, Edinburgh, has been appointed Head Master of Dulwich College. The salary attached to the appointment is £2,000 a year, with house. Mr. Smith is forty-seven years of age and is a native of Ayr. He was educated at Ayr Academy, Edinburgh University (M.A., First Class Honours in Classics), and Trinity College, Cambridge. His teaching experience has been obtained at Edinburgh Academy, Rugby, and Merchiston.

Mr. Charles W. Valentine, M.A., D.Phil., Assistant in Education in the University of St. Andrews and Lecturer on Psychology in the Training College, Dundee, has been appointed to the newly created Chair of Education in Queen's University, Belfast. Dr. Valentine is a member of the College of Preceptors, and formerly taught at St. Olave's School under the present Dean of the College.

A Struggle between Ideals of Citizenship.

To thoughtful Englishmen, says the *Times*, there is no more baffling paradox at the moment than that the ruthless piracy of the German forces and the unscrupulous aims of the German Government should be applauded without a hint of misgiving by a nation which has done so much to spiritualize and refine the thought of the world. To this question Dr. M. E. Sadler, one of the highest of educational authorities, with an intimate knowledge of the intellectual life of Germany, addresses himself in a Victoria League pamphlet just published, "Modern Germany and the Modern World" (Macmillan, 2d.). From the literary point of view only the essay is remarkable among the writings called forth by the War. What is more important is the freshness and insight with which Dr. Sadler explores those secrets of the German national character which even those who know Germany best may have failed to grasp. He bases his remarks largely on certain candid comments dropped by Prince Bernhard von Bülow in his "Imperial Germany." Three defects of the German character are there admitted, which go far to explain its perverse activity: (1) its lack of political discernment; (2) its sentimental tenderness side by side with a "grotesque subservience to fashionable theorizings." "One and the same man," says Dr. Sadler, "can be the kindest and sincerest of personal friends, and yet at a momentous crisis in the affairs of his country and the world allow himself to be chloroformed by such a theory as that which Bernhardi borrows from Treitschke"; (3) what Von Bülow himself calls "our old vice, envy." The significant fact is also pointed out by the German ex-Chancellor that German intellect and culture is the product of the South and the West, and reached its zenith without the help of Prussia. Prussia's work was to teach Germany the lesson of discipline. What this has done for Germany, and what we can learn from it, is shown with singular ability by Dr. Sadler. But he shows with equal force that the lesson has been overtaught, and that disintegrating forces have arisen which revolt against it.

EXERCISES FOR TEACHERS AND OTHERS.

By Eustace Miles, M.A.

The sedentary life seems to have come to stay. It has several aspects. First of all, there is deficiency of fresh air. In most of our cities it seems as if much of the air had already been used up. Even if we rise early in the morning and go into one of the parks, there still is a lack of that freshness which we get in the country throughout the day. There is, of course, on the other hand, a certain vitality—at least, many people "sense" it—from the human beings living in a city. Personally, I find the city atmosphere, or "aura," very stimulating to thought.

A second aspect of city life is the constant sitting, with its many marked effects, especially where the chairs are of quite the wrong shape, and when people sit more or less huddled up, with their shoulders too far forward and their chests cramped, and their organs allowed to sink or "sag" down.

A third aspect of the sedentary life is deficiency of free exercise.

Now, all these three features are worse when the diet is the same as it would be if we were having an abundance of vigorous exercise in the open air, and very little sitting. But the sedentary life is a factor to be dealt with, and I regard it as a great blessing in so far as it makes us careful. If we can live the sedentary life and still keep in good condition, and keep in good training while we are living the sedentary life, then we are in the position of mastery, as distinct from savages, who would probably, if they had to live the life which most of us do live, become extinct. As a rule, we cannot counteract the sedentary life satisfactorily by violent exertion after the day's work is over. I am going to suggest a very different method.

To begin with, it is very easy to do deep and full breathing in bed, first thing in the morning and last thing at night. And as most people, when they are awake, lie on their backs, we might, perhaps, begin with the abdominal breathing: for the chest breathing is likely to be good already—I mean, especially, the outward and forward expansion of the lungs. The lower, or abdominal, breathing is now taught as part of almost every system of breathing that is worthy of the name. The general method of instruction is somewhat as follows: Lie flat on your back and, as you inhale through the nostrils with the mouth closed, send your abdomen out; hold it out for a moment or two as you hold your breath in; then, as you exhale, contract your abdomen. Repeat this a few times. It is generally recommended as a help that one or both of the

hands should rest on the abdomen: first of all, to give the abdomen something to resist as you inhale; secondly, to help the exhaling, which is usually rather harder than the inhaling.

There is no doubt that the position of lying on the back is the easiest position for learning the abdominal breathing at the start; but afterwards, from practice, we should have such control of our muscles as to be able to send the diaphragm down so successfully that we can use this breathing while we are standing and, later on, even without sending the abdomen out. I need not enter into technical explanations of this; suffice it to say that the exaggerated sending out of the abdomen is rather ungainly and, in my opinion, need only be regarded as an initial help to deep breathing, which can be done eventually without this help.

Then another good help is to have an early walk in the morning. At Cambridge I very often used to get up at about six o'clock and go for a walk with a friend of mine—Dr. Hubert Higgins, who afterwards worked with Mr. Horace Fletcher. We used to find our brains more alert and active during this time of the day, and we used to look forward to this early walk as much as to anything else in the day.

It is not a bad plan to do some deep and full breathing during the walk also; and before starting on the walk to get a few ideas (which could be written down on cards or a piece of paper) to think over during the walk. A card index is extremely valuable for this purpose; ideas which occur during the walk can be jotted down during the walk or afterwards. One can in this way get a very valuable collection of thoughts and ideas. It is surprising how easily the mind is trained to collect ideas if we adopt some such plan.

Now, when one gets out, preferably dressed (if you are a male) in flannels (after a wash, and after brushing the teeth, &c.), you can either walk at a decent pace, or you can walk first and then run for a little distance: the alternate walk-and-run was what I used to prefer. It enabled me to cover a greater distance with less fatigue than if I had been running the whole time.

After the walk, of course, there should be a good wash and skin-drill. There is no need to have the elaborate skin-drill which is given in a well known system; much less than that is quite sufficient for most people. The skin-drill you can do with the hands, after dipping them in cold water (in the Hindu fashion), or you can use a loofah or a brush, preferably a brush with a handle, so that the back and spine can be easily reached. Needless to say, the skin-drill involves an air and light bath. The skin needs air and light just as much as it needs water. The rubbing of the skin helps to get off from it waste matter and the epidermis which is ready to be taken away. Some people like to rub in a little oil after they have done their skin-drill. The Greeks and Romans used to rub oil into their skin after their exercise and bath. I have found this best after exercise, deep and full breathing, and a wash in warm water with soap.

Now, these exercises will be quite enough for the first instalment. But I might say a word here with regard to their advantages.

First of all, the advantages of breathing are very obvious. Deep and full breathing of the right kind has a wonderful effect on the blood, giving it more oxygen, and helping it to get rid of carbonic acid gas and other waste matter; but the effect is far wider than this. Deep and full breathing has a decided influence on the organs, particularly the stomach, the liver, and the kidneys, through their massage by the diaphragm, &c.

Then there is the effect upon the brain and upon the poise. The brain has a rhythm of its own, corresponding to the rhythm of the lungs; and, as we alter the rhythm of the lungs by deep and full breathing, so we alter the rhythm of the brain; and we can, by degrees, cure ourselves of thinking so shallowly and so unsatisfactorily as most of us do. There are other effects of breathing of the right kind, but the above will be sufficient to show that the matter is of enormous importance to those who are leading the sedentary life.

There is no need to speak of the many advantages of the walk in the fresh country. Nearly every one will find a park or an open space somewhere near. For my own part, lately, I have preferred walking in the evening, taking a long stroll in Regent's Park two or three times a week. The skin-drill after the walk is exercise for the largest organ of the body, and it relieves other organs of their over-work, enabling the skin to turn out certain poisons which otherwise would have to be turned out chiefly by the kidneys. And this skin-drill involves bending, which in itself is a healthy movement. It involves a good deal of gentle exercise for the muscles, and improves the circulation, and has other capital results.

Just one word about the position of the body, on which matter I shall say more in the second article. As a general rule, it is best to have the small of the back hollow, and the chin in. Most people have their spines wrongly curved. It is rather a good plan to exaggerate in the direction opposite to those of the common faults.

(*To be continued.*)

EDUCATION AND THE WAR.

To my Colleagues in the National Service of Education.

What can we do for our country?

We are all asking this question, and seeking, according to the sphere of our duties and the nature of our capacities and opportunities, an appropriate answer. Perhaps it may help those who are engaged in the work of education—those who administer and those who teach and learn in schools and colleges and Universities—if I say quite simply what I feel.

I make no claim to dictate duties to others: I arrogate no ministerial authority for my words. I speak only as one worker to my fellow-workers. But perhaps it may be granted, less to me personally than to the position I hold, that I should attempt to express, if only in a fragmentary way, some of the thoughts and feelings which I know I share with many of my colleagues in the national service of education.

What can we do? We can keep the system of education going. There are practical difficulties to be faced. Many teachers and students have been summoned to military duties, whilst others are asking themselves whether duty calls them to go or to stay; school buildings have been taken for military and hospital purposes; we have to fill the gaps in our ranks and to contrive makeshifts; we are disturbed by excitement, unrest, and anxiety, and before us lies the prospect of sorrow and suffering. In the midst of uncertainty and disquiet we have to concentrate our minds upon our duty. But temporary difficulties are the opportunity for greater effort and more devoted service.

If we can keep the schools open and effective, and have ready against the hour of distress our organization for feeding school children, we shall have done much to guard a vital point. The welfare and health of children are an essential condition of national stability, most of all in a time of national stress. We can do much to reassure our countrymen serving with the colours, we can do much to maintain the balance and confidence of our life at home, by seeing that the children of the country are happy and occupied, living their normal life, well tended and undisturbed. As far as the educational service is concerned, let us who remain in it make this our first duty.

But there is more than this for us to do. The teachers can do more than anyone else to help their scholars, according to their age and capacity, to see why the cause upon which we are united is just; to feel, if they cannot fully understand, the meaning of liberty and of that free national life which every country, whether great or small, is right to cherish and defend. The scholars can be shown that we are involved in war by stern necessity, that we are fighting in the cause of peace and against the spirit of aggressive domination which is the great enemy of peace. They can be inspired to appreciate those high qualities of patience, forethought, perseverance, and steadfastness which are as needful for victory as the dash and enterprise which naturally move young minds the most. They can learn to be neither unduly exultant nor unduly depressed, to be proud of their race and country without arrogance, to be specially considerate and generous to others in need or distress. In particular, they can be reminded of our duty of courtesy and forbearance towards foreigners of whatever race, living peaceably among us. They can be brought to realize how hateful war is in

itself and in the desolation and suffering it involves, so that in the full vigour of a national spirit they may hereafter become workers for the concord of nations and lay the foundations of enduring peace.

Especially can scholars of every age be trained to feel, as the teachers must be feeling, that this is above all a time for the most exact, punctual, and willing discharge of every duty of daily life at home or at school. Our daily work, whatever it be, must be carried on with the same steadiness and devotion, the same resolve to be content with nothing but mastery in the task assigned, as are expected from our comrades and fellow countrymen on service at sea or in the field. We must be worthy of them. Readiness to spend and to be spent in the common cause is the great lesson of war, and if it is thoroughly learned in our schools to-day, it will be a source of strength to our country for generations to come. Let us stand together; let us demonstrate the solidarity of all who work for education, and manifest, in the most constructive and most fruitful of the services of peace, the fraternity of the fighting line.

Nor is this all. Whatever may happen in the strife of nations, there lies before this country a contest hardly less momentous with the distress and dislocation which war brings in its train. In this endeavour the education service of the country can play a great part. The Local Education Authorities, and their officers, the teachers, the Inspectors, and the voluntary workers acting together can be organized into an effective staff to help the Local Committees, which now cover the country, in the work of ascertaining needs and requirements, applying remedies, and bringing the collective action of the community to bear at the right time, at the right place, in the right way.

The time of our trial and proving is also the time of our opportunity. There are many boys and girls who, in the normal working of the industrial system, are lost too early to education, but in its temporary dislocation can be retained. Let us try to make for them the best educational provision we can. War involves not only the destruction of vast accumulations of capital which must be replaced, but the loss, perhaps, of thousands of men, skilful in their trade, trained in commerce and manufacture, by whose labours our prosperity has been created, maintained, and enlarged. Let us seize the chance of giving to the children who must soon take their places a longer education, a fuller training for the work by which, when peace is restored, the wastage of war may be supplied and the wealth of nations renewed. Let the children remain at school to prepare themselves for the enterprises of their manhood and womanhood. If we turn this opportunity to account, we shall find that out of the evil of war we have gathered the permanent good of a clearer consciousness of the value and possibilities of school life and training.

We are trustees for posterity. We guard the lines of communication between the present and the future. In the educational system for which I speak, there are more than seven millions of pupils and students, most of them of tender age —an army comparable in numbers with the forces which now stand armed in the European conflict. These seven millions are the future England. At the present moment a blow has been dealt, and, I sincerely believe, through no fault of ours, at the moral foundation of civilized life. When the conflict is over, we shall not only have to reconstruct the material fabric of civilization, but also to reaffirm its spiritual purpose. We must see to it that neither we nor those who come after us lose faith; that the seven millions may grow up still believing in national honesty and goodwill, in generosity, in humanity, in the supreme blessing of peace.

It is to them that we shall hand over the national and international polity which emerges from the present struggle —a form of society, we may hope, broader and more firmly based, freed of the secular heritage of racial hatred and military aggression which Europe is now expiating, but assuredly more exacting—demanding of all its members larger faculties, more highly trained aptitudes, a clearer realization of the common duty and destiny of men. Let us see to it that these seven millions, and those who follow them in the linked generations of school life, come to their task well equipped. Their achievements will be the justification of our endeavours; their wellbeing the measure of our success. At least let us be able in after years to tell them that we did our best; that in the hours of national stress and strain, faced by dangers without and anxiety within, we neither lost hope nor surrendered our trust. JOSEPH A. PEASE.

THE LIGHTER SIDE OF PEDAGOGY.

A FOREIGNER'S DIFFICULTY.

The difficulty of learning English with a dictionary is shown in this letter from the Gold Coast. The writer evidently has a grievance. "Dear Sir," he writes, "How will this be? I am more than regret, and I believe it will remedy in future. I do not understand the reason why I have written a letter for —— and since the period no better interest has ever sustained regarding to the treatment. However will you therefore endeavour to alter this heavy misconduct? And I do really bear in mind that the Editor of the staff will instruct and conduct the business firmly. I mean really to say I hope you will post one to my address and send all subscriptions of same sooner or later. Hope you will investigate this matter and let me know afterwards."

A MANUFACTURED HOWLER.

In my precious little book with the gold key [says the Marchesa Peruzzi de' Medici in the *Cornhill Magazine* for July] Andersen wrote the lines:

"Les cordages de la Marine Anglaise sont traversés d'un fil rouge, qui constate qu'ils appartiennent à la couronne. La vie humaine, dans les petites choses, autant que les grandes, est traversée d'un fil invisible qui constate qu'elle sera à Dieu.

"HANS CHRISTIAN ANDERSEN.

"Rom, May 21, 1861."

A year later Thackeray asked me to let him write on the same page:

"Having to translate the above sentence at the Competitive Examination for the Wooden Spoon Scholarship at Brazenose College, the Hon. Charles, third son of Rt. Honable. Lord Dundreary, sent in the following version:

"'The corduroys of the British Marines are crossed with a red stripe to show they belong to the crown. The human life in the little things as much as in the great is traversed by an invisible son, who is constantly saying good-bye.'

"My Dear Edith,—This is not as good a joke as 'Young Brodie and the Coo,' twenty pages ahead, but it is VERY NEARLY as good, and as such is respectfully offered to you by your old friend, W. M. THACKERAY.

"Kensington, October 29, 1862."

LOUVAIN.

NOT venerable age nor sacred fame
Could spare her treasures from the drunken foe;
Gentle and mild she stood, nor thought to know
The sword's cruel stab, the searing of the flame:

Ashes and dust cry out the deed of shame,
And call to God for that avenging blow,
Bringing His deep, unutterable woe
On men who do their vileness in His name.

Belgium has lost her mother-town; and we,
Impotent when the devil-work was done,
Crushing the loving travail of the years,
Think, if we dare, on what our land would see
If Oxford, Cambridge, fell before the Hun,
And mingle curses with the martyrs' tears.

A. C. B.

CORRESPONDENCE.

SPELLING REFORM AND PEACE.

To the Editor of "The Educational Times."

SIR,—So pacific, so beneficent, so utilitarian a project as the Simplified Spelling Society's petition, asking for a Royal Commission of inquiry into the present irrational system of spelling, may seem inopportune at a first glance—a device of cranks or pedants too enthralled by their own peddling reforms to heed the life-and-death struggle which is convulsing Europe. We had half feared the time would seem so inauspicious that many would stay their pens with the uttered or unuttered thought, "Ridiculous to worry any Government with these trifles *now*!"

But this thought could only spring from a shallow conception of what we are working for. If we are to judge by the many signed petitions which daily drop into our office letter box, it has obviously occurred to few. Our honest opinion is that never was occasion so auspicious as the present. True, the work of collecting signatures will be carried on through dark days of trial, perhaps with the sound of distant cannonading in our ears, and in our hearts griefs and fears unspeakable. But when "this world madness has been exorcised," when all the hateful noises of warfare are merged in that lovely caressing word "Peace," then will come the day for such movements as ours. Ours is a tiny reform, a debatable advantage many would say, yet we are not afraid or ashamed to set it boldly in this larger light.

The peace which is coming will be such as the world has never known—not a half-fearful, half-unwilling respite from battles, but an organized peace, a peace for which hundreds, nay thousands of men, will have laid down their lives.

Peace propaganda has done much to turn men's minds against war; Norman Angell has preached incisively its economic absurdity; other men have written graphically of the stench and din of the smoking battlefield. But the day of the peace-maker is only coming. When civilization reels exhausted from the fight, it will be his to step in, and, gathering all his strength, make his gospel a living reality; enter into his kingdom which we are told on the highest authority is of God. In the great pacification that is coming, an impetus will be given to reforms social and educational. Reconstructive work will necessarily be pursued with new energy, and in the process of building up men will be less tolerant of old-established errors. Simplified spelling will not, we believe, be merely on a line with other reforms. It will be, more than any, timeous. We have always held that it was a factor which must be taken into account in any thorough-going peace propaganda. Bridge over the speech barrier, silence the discords of Babel, bring the peoples of different nationalities into the intimate relationship of the spoken word, and you have gone more than a step or two on the path of universal brotherhood. "I fear him I do not understand, I hate him I fear," says an Eastern proverb. In a sentence we have the root of the matter, the origin of the unhuman passion of hate.

How far does spelling interfere with the rapid acquisition of a language? I reproduce only the testimony of a people who have no mean reputation for alertness of mind. "My Japanese friends," said Lord Bryce in his presidential address at the Imperial Conference of Educational Associations, "asked me, 'Why in heaven's name don't you improve your spelling? Your spelling is the greatest difficulty in the way when we try to teach English. Until you pronounce as you spell, or spell as you pronounce, it is for some of us an immeasurable, for many an insuperable difficulty.'" Such instances could be multiplied indefinitely.

We have already in the list of names appended to our petition some of national and European fame. Among them we may mention: Prof. Gilbert Murray, LL.D., D.Litt., F.B.A.; the Right Hon. Sir Frederick Pollock, Bart., LL.D., D.C.L.; Vice-Chancellor Michael Sadler, C.B., LL.D.; the Right Rev. Bishop Welldon; Mr. J. L. Paton; Mr. H. G. Wells; the Rev. Prof. W. Emery Barnes, D.D.; Mr. William Archer, M.A.; Prof. Walter Rippmann, M.A.; Mr. Daniel Jones, M.A.; Mr. Harold Cox; Sir James Donaldson, LL.D.; Sir Frederick Bridge, C.V.O.; Sir William Ramsay, K.C.B. But we want the inarticulate multitude too. We want the teacher in the country school, struggling with his own special difficulties as well as the Professor, who perhaps has a wider outlook, but has less intimate knowledge of the one particular patch of ground. We want to confront the Board of Education with the testimony of those who carry out its desires—that a reform in spelling would enormously simplify educational work among all grades of teachers. Already the Board has issued directions for the pronunciation of Latin; is it impious to hope that it may turn its attention to the more vital matter of the spelling of English?

We had not counted, even before there was any thought of war, on being able to present our petition before the Spring of next year. Now it may be even longer delayed, but presented it will be. Meantime, we appeal to teachers to help us in the matter by signing the petition through the National Union of Teachers and the Assistant Masters' Association branches, whose Secretaries have all been supplied with copies, or by writing direct to the office at 44 Great Russell Street, London, W.C., where they will be supplied with a copy and stamped addressed envelope.

The petition does not commit signatories to approval of any specific scheme of reform. We call it a children's charter, but it is a teachers' charter also. CHRISTINA JUST.

"TEUTON" AND "GERMAN."

To the Editor of "The Educational Times."

SIR,—"Teuton" and "Teutonic" are commonly used for "German" and "Germanic." Is this right? Certainly race and language names seem apt to be confused. We speak of "Latin races," not because of ethnographic distinction, but because these peoples speak languages mainly Latin.

Now as not only German is classed as a Teutonic language, but also the speeches of Holland, Flanders, Denmark, Norway, Iceland, and Sweden, it seems illogical to say "Teuton" when we mean specifically "German." We English, too, claim a large Teutonic element in our race and language.

Loose terminology of this kind has been widely indulged in. German comparative grammarians from Bopp downward have adopted the misleading term "Indo-Germanic," for which Max Müller substituted the harmless term "Aryan." Our scholars "went one better" with "Indo-European." The inaccuracy of these terms should be obvious.

In an article in the *Times* of August 19 the writer speaks of "the Semitic, and therefore emotional, Xerxes." Now Xerxes and his Persians at any rate spoke an "Aryan" tongue, as do the Persians of to-day. It is possible that some are misled by the use of Arabic script in non-Semitic languages (*e.g.* in Persian, Turkish, Hindustani). I once read in so well edited a paper as the *Westminster Gazette* of the "hot *Slavonic* blood" of Tisza and his Magyar associates! So pray let us (especially in present conditions) call Germans "German," on the simple principle on which the Gilbertian bishop was called "Peter"!—Yours truly, C. R. POTTER.

30 Empress Road, Wallasey, Cheshire.
September 21.

CURRENT EVENTS.

THE Council of the College of Preceptors met on the 26th of last month. A report will appear in the next number.

PROF. JOHN ADAMS begins, on October 1, a course of lectures on "Problems in School Practice." The lectures are given at the College of Preceptors at 7 p.m. The syllabus will be found on another page.

THE Dalcroze College at Hellerau has been closed on account of the war. Mr. Jacques-Dalcroze is now in London, and will take an active part in the work of the School of Eurhythmics at 23 Store Street.

MESSRS. HARRAP are publishing immediately a book on the war by Mr. Cloudesley Brereton. The title is "Who is Responsible? Armageddon and After." The author deals with the causes of the war, and discusses the settlements that will follow.

MISS RUTH YOUNG, Secretary of the Association of Head Mistresses, writes:—"With the gracious permission of her Majesty the Queen, her Royal Highness the Princess Mary has consented to become patroness of the Girls' Patriotic Union, which has been organized by the Association of Head Mistresses for the purpose of spreading information among girls throughout the United Kingdom as to how they may render help to their King and country during the war. The Association invites the co-operation of all head mistresses of girls' secondary schools, whether public or private. Information may be obtained from the Hon. Secretary, Girls' Patriotic Union, at the office of the Association, 61 Great Ormond Street, London, W.C.

MISS BROWN and Miss Hamilton, assistant mistresses at the Leytonstone County High School, are detained in Germany. News has been received as to their safety, but they are not allowed to leave the town they are in. Another teacher from the same school is thought to be in Germany.

CLASS LISTS

OF CANDIDATES WHO HAVE PASSED THE CERTIFICATE EXAMINATION OF THE COLLEGE OF PRECEPTORS.—MIDSUMMER, 1914.

LIST OF SUCCESSFUL CANDIDATES AT COLONIAL AND FOREIGN CENTRES.

N.B.—The small italic letters denote that the Candidate to whose name they are attached was distinguished in the following subjects respectively:—

a. = Arithmetic. *al.* = Algebra. *bk.* = Book-keeping. | *d.* = Drawing. *e.* = English. *f.* = French. | *g.* = Geography. *gm.* = Geometry. *h.* = History. | *l.* = Latin. *ms.* = Mensuration. | *ph.* = Physiology. *s.* = Scripture.

*The signs * and † prefixed to names in the Junior and Preliminary Lists denote that the Candidates were entered for the Senior and Junior Grades respectively*

In the addresses, Coll. = College, Inter. = Intermediate, Prep. = Preparatory, R.C. = Roman Catholic, S. = School, Sec. = Secondary,

[Bracketing of names denotes equality.]

BOYS.

SENIOR.

Honours Division.

Davidson, A. *s.a.bk.*
St. Joseph's Inter. S., Georgetown, B. Guiana
Pobee, J.M.S. *s.bk.*
Cape Coast Government Primary S.

SENIOR.

Pass Division.

Luck, J.C. *s.* — Private tuition
Manson-Hing, R. *s.* — Private tuition
Abbott, G.C. *s.* — Queen's Coll., Nassau
Htoon, T. *ph.* — Norris Coll., Rangoon
Cole, J.K. — Queen's Coll., Nassau
Lwin, H.G. — Norris Coll., Rangoon
Sands, N.D. *a.* — Queen's Coll., Nassau

JUNIOR.

Honours Division.

Judah, J.E. *h.a.al.gm.ms.* — Wei-hai-wei School
Bower, W.H. — Wei-hai-wei School
Hammond, J. *f.*
Richmond Coll. of W. Africa, Cape Coast
Ricketts, H. Richmond Coll. of W. Africa, Cape Coast
Beer, W.L.M. — Wei-hai-wei School

JUNIOR.

Pass Division.

Kanagaretnam, V. — Private tuition
Bertès, L. *d.* — Wei-hai-hei School
Cardoza, J.P. — Eton Coll., Colombo
Gittens, L.E.D.
St. Joseph's Inter. S., Georgetown, B. Guiana
*Minnow, J.L. *h.*
Richmond Coll. of W. Africa, Cape Coast
*Leighton, K.G. *h.*
Richmond Coll. of W. Africa, Cape Coast
Orr, C.E.M. — Eton Coll., Colombo
Woode, J.E. Richmond Coll. of W. Africa, Cape Coast
Sackey, A.M. Richmond Coll. of W. Africa, Cape Coast
Kankanige, F.P. — Private tuition
Tulloch, C.E.
St. Joseph's Inter. S., Georgetown, B. Guiana
Bart-Plange, H.F.
Richmond Coll. of W. Africa, Cape Coast
Perera, K.P. — Eton Coll., Colombo
Johnson, G.E.H. — Queen's Coll. Nassau
Fung, J. — Private tuition
Sands, H.P. — Queen's Coll., Nassau
Macfarlane, R.A. — Wei-hai-wei School
Sinnannan, S.P. — Private tuition
Fraser, W.
Queenstown Moravian S., Georgetown, B. Guiana
Sampson, F.A. *al.* — Wei-hai-wei School
Nelson, R.M.A.
Richmond Coll. of W. Africa, Cape Coast
Don Alban, R. — Eton Coll., Colombo
*Kerwood, G. C.
St. Joseph's Inter. S., Georgetown, B. Guiana
Smith, J. *a.*
Beterverwagting Moravian S., Demerara, B. Guiana
Fernando-Pulle, I.N. *f.* — Private tuition
Clark, J. — Wei-hai-wei School
Schwartz, E.R. — Agricola Wesleyan S., Demerara
*Naikwara, M.H. — Norris Coll., Rangoon
*Cowasjee, B.N. — Norris Coll., Rangoon
Fernandes, C.G.
St. Joseph's Inter. S., Georgetown, B. Guiana
*Sein, S. — Norris Coll., Rangoon
Halm, W. Richmond Coll. of W. Africa, Cape Coast
Sweeting, G.A. — Queen's Coll., Nassau
Amoury, A.A. — Queen's Coll., Nassau
Abdul Azeez, S.M. — Eton Coll., Colombo
Gunewardene, A.S. — Eton Coll., Colombo
Edinboro, C. — Private tuition
*Harper, H.H. — Plaisance Sec. S., British Guiana
Ariff, J. — Norris Coll., Rangoon
Williams, T.U.S.
Albion, Corentyne, Berbice, B. Guiana
Chellemben, G. Albion, Corentyne, Berbice, B. Guiana

PRELIMINARY.

Honours Division.

Hagan, J.M. *s.h.a.al.d.*
Richmond Coll. of W. Africa, Cape Coast
Bilson, T.McA. *s.a.al.bk.*
Richmond Coll. of W. Africa, Cape Coast
Brown, E. *a.al.d.*
Richmond Coll. of W. Africa, Cape Coast
Graham, G.A. *al.bk.*
Richmond Coll. of W. Africa, Cape Coast
Hagan, G.C. *a.al.bk.*
Richmond Coll. of W. Africa, Cape Coast
Williams, R.E. *s.a.bk.*
Cape Coast Government Primary S.
Jardim, R.F. *a.al.l.*
Second Grade S., Georgetown, B. Guiana
Arthur, J.B. *s.a.al.bk.*
Richmond Coll. of W. Africa, Cape Coast
Larvie, C. *a.al.*
Richmond Coll. of W. Africa, Cape Coast
Large, G.C. *g.a.* — Wei-hai-wei School
Acquah, I.N. *a.al.*
Richmond Coll. of W. Africa, Cape Coast
Kumah, J.O. *h.*
Richmond Coll. of W. Africa, Cape Coast
Ainooson, J.B. *a.al.*
Richmond Coll. of W. Africa, Cape Coast
Inch, J.V. *g.al.* — Wei-hai-wei School
Daniels, F.E. *al.d.*
Richmond Coll. of W. Africa, Cape Coast
Kerr, C.R. *d.* — Wei-hai-wei School
Dartey, E.J. *al.d.*
Richmond Coll. of W. Africa, Cape Coast
De Freitas, M.C. *a.* — Private tuition
Sagoe, H.G. *a.al.* Cape Coast Government Primary S.

PRELIMINARY.

Pass Division.

Lartey, B.K. *al.*
Richmond Coll. of W. Africa, Cape Coast
Shastin, T.N. — Wei-hai-wei School
Ghartey, B.Y.A. *al.*
Richmond Coll. of W. Africa, Cape Coast
Blankson, K.A. *bk.*
Richmond Coll. of W. Africa, Cape Coast
Graham, J.E. Richmond Coll. of W. Africa, Cape Coast
Arthur, G.W. *a.al.bk.*
Cape Coast Government Primary S
Harvey, J. *a.* — Cape Coast Government Primary S.
Acquah, J.K. — Cape Coast Government Primary S.
Sacoom, S. Richmond Coll. of W. Africa, Cape Coast
Thompson, J.D. *a.* Cape Coast Government Primary S.
Vroom, H.McA. *bk.*
Richmond Coll. of W. Africa, Cape Coast
Bilson, S.T. Richmond Coll. of W. Africa, Cape Coast
Quagrainie, E.J.
Richmond Coll. of W. Africa, Cape Coast
Judah, D.B. — Wei-hai-wei School
Sampson, H.H.J.B. *al.*
Richmond Coll. of W. Africa, Cape Coast
†Harding, M.S. St. George's S., Georgetown, B. Guiana
Mensah, J.P. Richmond Coll. of W. Africa, Cape Coast
†Dharmadasa, E.G.M.M.A. — Eton Coll., Colombo
Mensah, J.W. — Cape Coast Government Primary S.
Arthur, J.I. — Cape Coast Government Primary S.
Coppin, E. *a.*
Bourda Wesleyan S., Georgetown, B. Guiana
†Faria, W.V.
St. Joseph's Inter. S., Georgetown, B. Guiana
Lammert, R.O. — Wei-hai-wei School
Incoom, J.A. Richmond Coll. of W. Africa, Cape Coast
Arthur, J.B. — Cape Coast Government Primary S.
Bethel, J.P. *s.* — Queen's Coll., Nassau
†Hmat, M. — Private tuition
Anderson, E.J. Richmond Coll. of W. Africa, Cape Coast
Kerr, W.L. *al.* — Wei-hai-wei School
Sands, A.B. *a.* — Queen's Coll., Nassau
De Freitas, C.C.
St. Joseph's Inter. S., Georgetown, B. Guiana
†Roberts, L.W.E.
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Boham, E.J. Richmond Coll. of W. Africa, Cape Coast
†Da Silva, F.
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Cole, W.A. — Queen's Coll., Nassau
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St. Joseph's Inter. S., Georgetown, B. Guiana
Man-son-Hing, J.
St. Joseph's Inter. S., Georgetown, B. Guiana
Wilson, J. Richmond Coll. of W. Africa, Cape Coast
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GIRLS.

SENIOR.

Pass Division.

Thompson, M.A. *s.al.* — Queen's Coll., Nassau
Thompson, E.E. *s.* — Queen's Coll., Nassau
Anthony, P. — The Bigandet English S., Rangoon

JUNIOR.

Pass Division.

Silvera, E.O'C. *s.* — Brampton, Mandeville, Jamaica
*Permal, L. — Norris Coll., Rangoon
Maclure, M.R. — Queen's Coll., Nassau
Kelly, E.M. — Queen's Coll., Nassau
*Moore, J.M. — Private tuition
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Bollers, M.R. — Queenstown R. C. School, Georgetown, B. Guiana

PRELIMINARY.

Pass Division.

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Raghavan, L. — Norris Coll., Rangoon
Henriquez, D.L. — Brampton, Mandeville, Jamaica
†Campbell, M.R. — St. Joseph's Inter. S., Georgetown, B. Guiana
Hart, S.M. — Brampton, Mandeville, Jamaica
Albury, M.M. *al.* — Queen's Coll., Nassau
Burke, M.C.R. *e.* — Brampton, Mandeville, Jamaica
†James, J. — St. Paul's Sec. S., Plaisance, B. Gniana
Malcolm, M.C. *s.al.* — Queen's Coll., Nassau
†Moment, F. — Norris Coll., Rangoon
†Mehta, M. — The Bigandet English S., Rangoon
Kin, M.N. *a.al.d.* — The Bigandet English S., Rangoon
†Blackman, D.K. — St. Joseph's Inter. S., Georgetown, B. Guiana
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Gideon, R.S. — Brampton, Mandeville, Jamaica
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Bloison, F.A. — St. Joseph's Inter. S., Georgetown, B. Guiana

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Christie, F.H. — Queen's Coll., Nassau
Clark, D.F. — Wei-hai-wei School
Evans, G.C. — Wortmanville R.C. School, B. Guiana
Fernandes, G.S. — Boys' S., Georgetown, B. Guiana
Gonsalves, C. — Boys' S., Main Street, Georgetown, B. Guiana
Gonsalves, R.R. — Boys' S., Georgetown, B. Guiana
Gouveia, F.E. — Prep. S., Georgetown, B. Guiana
Higgs, L.C.M. — Queen's Coll., Nassau
Kelly, C.G.T. — Queen's Coll., Nassau
Lammert, F.E. — Wei-hai-wei School
Lee, T.A. — Wei-hai-wei School
Lin, T. — Norris Coll., Rangoon
Prowell, F.H. — Wortmanville R. C. School, B. Guiana
Smith, R.B.H. — Wei-hai-wei School
Tilburn, C.L. — Wei-hai-wei School

GIRLS.

Carey, P.L. — Queen's Coll., Nassau
Carter, I.L. — Prep. S., Charlotte St., Georgetown, B. Guiana
Escoffery, M.I. — Brampton, Mandeville, Jamaica
Harty, H.G. — Bramptou, Mandeville, Jamaica
Joyce, A.M. — Brampton, Maudeville, Jamaica
McArthur, M.A. — Prep. S., Charlotte St., Georgetown, B. Guiana
Moore, A.M. — Queen's Coll., Nassau
Sands, U.C.B. — Queen's Coll., Nassau
Stoute, G.I. — Queenstown Moravian S., Georgetown, B. Guiana
Thomson, D.M. — Brampton, Mandeville, Jamaica

THE COLLEGE OF PRECEPTORS

PROFESSIONAL PRELIMINARY EXAMINATION.—SEPTEMBER, 1914.

PASS LIST.

The Supplementary Examination by the College of Preceptors was held on the 8th, 9th, and 10th of September in London and at eleven other local centres — viz., Birmingham, Blackburn, Bristol, Cardiff, Edinburgh, Glasgow, Leeds, Liverpool, Manchester, Newcastle-on-Tyne, Nottingham. The following candidates obtained Certificates:—

SENIOR.

Pass Division.

Madhuprot, P. *a.*
Palmer, B. F.
Pearson, E. J. *a.f.l.*
Pinching, R. L.
Sander, E. H. L. *a.*
Woodhead, G. S. *a.*

JUNIOR.

Honours Division.

Brown, F. *a.al.*
Carleton, M. H. *e.f.l.*
Clements, G. L. *a.l.*
Jeffery, A. L. P. *a.f.l.*
Jeffery, Miss V. R. *l.*
Smith, E. C. *g.a.l.*

Pass Division.

Barnes, N. H.
Beattie, T. M.
Bennett, A. M.
Benson, C. A.
Bevan, A. L.
Bingham, H. *gm.*
Bower, C. E.
Bridgman, T. J.
Calvert, Miss E. R. *f.*
Cooper, C. R.
Crick, A. *e.a.*
Crosley, C. R.
Dickinson, J. T. S. *a.*
Dunn, Miss M.
Enerfield, O. *a.*
Fairfax, R. W.
Faulkner, P. W.
Finn, W. *f.*
Grimmer, G. S. M.
Hall, G. *f.*
Hayward, H. J. *e.al.gm.lt.ch.*
Hicks, C. M. H.
Hinton, J. W. M.
Irving, H. O. *a.*
Jackson, C. A. E.
Jeffery, D. R.
Kemp, F. W. *e.*
Kennedy, H. P.
Kindness, J.
Lawson, R.
Leach, J. N.
Leach, R. F.
Leyshon, W. J.
Lound, J. D.
McLaren, D. O.
Moore, M. J. M. *l.*
Murphy, W.
Newell, S. F. *al.*
O'Donovan, M.
Parsonage, R. P.
Penley, R. J. B.
Petersen, F. F.
Pierce, E. R. *a.*
Powell, J. H.
Powers, C. V. M.
Rimmer, R. D.
Rose, A. J.
Rose, C. V. D.
Siddiqui, B. A.
Smith, F. J.
Standen, C. W. *e.*
Stockdale, W. H. *a.*
Targett, R. A.
Thomas, H. H.
Tucker, F. L. J.
Tunnicliffe, E. C. *e.*
Walton, Miss E. A. *a.f.ch.*
Whitaker, A. E.
Williams, C. G.
Wilson, C. B.
Winston, W. P. B.

N.B.—The small italic letters denote that the Candidate to whose name they are attached was distinguished in the following subjects respectively:—

a. = Arithmetic.
al. = Algebra.
ch. = Chemistry.
e. = English.
f. = French.
g. = Geography.
gm. = Geometry.
l. = Latin.
lt. = Light and Heat.

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The **STUDENTS' CLUB and RESIDENTIAL COLLEGE** were erected in 1890 at a cost of £21,000. The Club contains reading, dining, and smoking rooms, while the College affords accommodation for about 60 Students, who may be summoned to the wards at any hour of the day or night.

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ENTRANCE SCHOLARSHIPS IN ARTS AND SCIENCE to the value of £380 are awarded annually in September.

For further particulars, and permission to be conducted over the School Buildings, applications should be made to

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Prizes are offered each month for the best replies to the subject set. Competitors may, if they wish, adopt a *nom de guerre*, but the name and address of winners will be published. Competitions, written on one side of the paper only, should be addressed to the Editor of *The Educational Times*, 6 Claremont Gardens, Surbiton, and should reach him not later than the 15th of the month. As a rule competitions should be quite short, from 100 to 500 words.

The first prize will consist of half a guinea; the second prize of a year's free subscription to *The Educational Times*. It is within the discretion of the Editor to award more than one first prize, or more than one second prize. Cheques are paid on or about the quarter-day following publication.

Subject for September.

A criticism of not more than 600 words on the advice given to students: "If cramming means the acquiring of facts, then cram, cram!"

The main defect in this set of papers is that few of the competitors kept to the exact subject set. Several excellent essays were submitted on cramming in general, and, had the subject been the definition of cram, many of these would have ranked high, though naturally in such a debatable matter most of the definitions suggested are open to objection. One ingenuous person, for example, proposes "the acquisition by illegitimate means of certain pieces of information for a purely temporary purpose." In a meeting of teachers this definition would at once open the floodgates of controversy, even though it were as well supported as is the case in the little essay from which it is taken. For our present purpose, however, it it evident that the definition is a part of the data of the problem.

The advice tendered by the experienced old teacher to his students was based on the understanding that "cram" did consist of the acquiring of facts. If "cram" means something else, then the advice would not have been given. If, for example, it implies the illegitimate processes of the competitor referred to above, it would cease to be commendable. But, even assuming that "cramming" means merely the acquiring of facts without any reservation about the method of acquiring them, there still remains the important question of the nature of the facts to be acquired. There must be discrimination among facts before we can urge students to master them. Do not the most violent educational controversies centre round this very point? What knowledge is most worth? asks Herbert Spencer; and a whole library of quarrelsome matter has been written in answer. The distinction between education and knowledge-mongering must be kept in view in any satisfactory criticism of the advice proposed for criticism.

In view of the conditions of the case, the best criticism sent in is by "Aberdonensis," and as some of our competitors have written asking that we should sometimes publish in full the prize answer we append his criticism.

"Since cram has always been the most opprobrious term in the educational vocabulary, it is somewhat startling to hear the injunction 'Cram, cram,' given in any form to a student. A great deal turns, however, upon the truth of the hypothesis, and our criticism of such advice resolves itself mainly into examining the place and importance of facts in the study of any subject. It is clear that the cramming here advocated is not the uneducational process to which we usually apply the term. Everyone condemns the hasty acquisition of unassimilated facts by the procrastinating student for some immediate purpose. We see how transitory such knowledge is, and that no one ever in this way advanced the study he pursued.

"Facts are the raw material of any subject. You cannot make bricks without straw, and a certain acquisition of facts is essential. But this is not by itself education, and any examination paper which is so framed as to demand only knowledge of facts is promoting an uneducational method. Just as in mathematics we judge a student's abilities by his use of geometrical propositions in the solution of new problems, so in all subjects we should test his use and application of facts rather than mere knowledge of them. Modern educational theory has been emphatic on this point. It has put its ban on lists of geographical names, dates, battles; on the literary history of the textbook; on science that is independent of experiment and observation. Indeed the rebound against 'cram' has resulted in the present-day tendency to neglect the solid and laborious acquisition of a basis of facts. Especially is this true of our elementary schools, which are free from examinations, and can therefore pursue their own methods. The bright, interesting, stimulating lesson is the fashion, to which the children contribute nothing in previous or subsequent preparation. This is as fundamentally a mistake as the superseded verbal grind of a past generation.

"Even in science, where the student is most independent of facts, if his researches are ever to add anything to the sum of knowledge, there are records of the labours of predecessors which he is entitled to acquire from books as the heir of the ages.

"The advice, then, in our text, is sound, so long as the student recognizes that the acquiring of facts is the beginning, and not the end, of his work. But it is chiefly admirable for the emphasis it lays on effort: 'There is no royal road to learning,' and the 'cram' of the industrious and enthusiastic student, as distinguished from that of the lazy and dilatory, is necessary to all progress in learning."

A half-guinea prize is awarded to "Aberdonensis," who will please forward his (or her) name and address for publication; and a second prize to Mr. J. Harman, A.C.P., 112 Manchester Road, Blackpool.

Mr. G. Kitching, Allenby House School, Burton Road, Derby, writes asking us to make it known that he is the author of the original motto with which we began the comments on the August Competition. He is of opinion that a person is entitled to quote himself as well as to quote another. We do not question his right to hold this view, and on his part he is generous enough to admit that "the point may admit of argument."

One of the main aims in carrying on this competition is to get teachers to exchange interesting experiences. Wherever possible, competitors should fall back upon what has actually happened to themselves or their friends. In next month's competition, for example, any retort, whether it has appeared in print or not, is eligible; but it is obvious that, other things being equal, the retort that has not yet been published should have a certain preference.

Subject for October.

The best retort made by a teacher to a pupil who has tried to "score off" him.

The following special subject in Pedagogy has been approved for the Teacher's Diploma Examination for External Students of the University of London in 1916, "The Evolution of German Education in the Nineteenth Century: Paulsen—The German Universities and University Study and German Education Past and Present."

It has been decided to continue the London Day Training College as a school of the University of London in the Faculty of Arts (in Pedagogy only) for a further period of five years from October next.

The Executive Committee of Ruskin College, Oxford, have resolved that, owing to the war, the college shall not be open for resident students during the session 1914–15, and that the college shall be offered to the Government for hospital purposes. The work of the correspondence department will be carried on as usual.

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Communications intended for the Editor should be addressed to The Editor of the Educational Times, 6 Claremont Gardens, Surbiton.

SANE SEX TEACHING.

VI.—THE PURPOSE OF SEX.*

By C. W. Saleeby, M.D., F.R.S.E.

It may prove impossible to be worthy of the privilege of concluding the important series of articles which have already appeared under this title; but at least I may avoid the presumption of merely approving and reiterating what has already been so well and authoritatively said. There remain some matters of principle and of detail which, perhaps, may be usefully considered, in their turn. And, first, in this article, for the principle.

There must be no apology for sex. This is one of the deepest, oldest, most general facts of the living world. We have lately found it even among single-celled organisms, such as the parasite of malaria. It is as deep, and as important, among plants as among animals. It is absolutely without exception in all living beings but the very lowest of the low. It is no mistake of Nature, and in ourselves it is no mere survival from an unworthy, if necessary, chapter in our ancestry. Without proper development of sex no human being can be normal or whole, whether in body or in mind. To declare that Sex, even in the "paragon of animals," is unworthy and should be suppressed, and if possible uprooted, is to blaspheme; and it is to make ultimate failure certain, as is the way when man's partial vision leads him to "fight against God."

It is part of the vital order that all living beings shall die, while life persists; and, since all individuals are mortal, the continuance of all living races depends upon that which the biologist most commonly calls reproduction, but which may as well, for our present purpose, be called parenthood. The physiological mechanism, and the psychological appanage of instinct, which develop so signally at puberty, are the natural

* Previous articles in this Series have appeared in the April, May, June, August, and September numbers.

and necessary provision for the future of mankind. Owing to the fact of sex, parenthood involves a relation between the sexes, and this relation constantly tends to be looked upon as the essence of the whole matter. It is, if one may use the term, a necessary accident, but no essence of parenthood. It exists primarily, secondarily, ultimately, for parenthood, and for nothing else. True, the youth whose natural and healthy instinct has been aroused does not know for what it has been evolved within him. We laugh at him, and he does not understand himself, but Schopenhauer, and Darwin quoting him, are evidently right when they point out that the whole future of mankind depends upon the object of our whilom and thoughtless amusement. Prof. William James long ago pointed out that one of the marks of an instinct is its subject's unawareness of the real end for which it exists. It is only intelligence that foresees and comprehends. Instinct, and its correlative emotion, refer directly to the immediate object; but Nature is not mocked, and ever looks to the end thereof. In us intelligent beings there arises the glorious possibility of intelligently using and comprehending our own instincts. The business of the teacher in this most vital, most critical, most momentous, of all fields is to teach the self-knowledge, self-reverence, and self-control, which alone, as Tennyson sang, lead life to sovereign power.

Not by foolish berating of the normal physiology of sex can we impart self-reverence, surely. Better far to realize, and never to forget, the purpose of sex, which is the future life and health and happiness of our kind. For this reason I have long urged that what we commonly call the "sexual instinct" should preferably be called the "racial instinct," not in order to avoid the perfectly harmless word "sexual," but because the term "racial" defines and qualifies the instinct in its essence, which is for the race, rather than its accident, which is towards the opposite sex. Nature, it is true, has so made us that the satisfaction of the instincts which are necessary for the maintenance of the life of the individual and the species is normally pleasant, otherwise we could not be counted upon to do what is necessary for the maintenance of life. Only in intelligent, provident man can a "reason" be urged for an action, or for refraining from an action; but while we urge such reasons in regard to the hygiene and ethics of sex, we must not ignore the natural, normal facts which underlie the whole.

Still less shall we be inclined to do so when we remind ourselves of what many modern students have taught. We all know the physiological doctrine of "internal secretions," of which the thyroid gland in health and disease is so cogent an illustration, and we are well aware that the normal internal development of the racial glands, in either sex, is necessary for the normal development of the individual. If the individual is for the race, as biology can prove, the race is for the individual. The relation is mutually adjuvant. Further, the psychical realm is included in this statement. Students of Dr. McDougall's "Social Psychology"—that is to say, all who really wish to understand the main truths of the human mind and conduct—are well aware of the profound truth that from the racial and the parental instincts there spring, if they be rightly developed, controlled, and used, all of the highest attributes of our nature. Anger at injustice, sympathy with oppression, tenderness for the ill, the young, the old, of our own and other species—these things are the noble fruit of the hidden and earth-stained root which foolish people would have us call "beastly" and "low." Never in this world shall we be the vehicles of sound sex teaching if we are wrong in this cardinal respect.

This is not to say that we are necessarily to talk explicitly of future parenthood to those whom we would help, in and out of season. It is rather that, if our own orientation towards the facts be right, we shall not be betrayed into modes of expression or verdicts of judgment which in the long run will be found false by our pupils and will permanently discredit us. I make bold to say that the issue here raised defines the difference between the vast body of false and disastrous sex teaching in this and all ages and the small, rare body of the real thing. Can we question that the issue is real, irreconcilable, all-consequent, between the view here stated and that of historical asceticism, with its belief that sex and its relations are the devil in man, which must be extirpated, and with all its history of disastrous celibacy, outrage, and maiming of life, expelled with a pitchfork, but returning surely in distorted, wounded, and septic forms?

In a final article we may attempt to note some of the details by way of an appendix to all the valuable advice in preceding articles, whereby the principle here laid down may be translated into practice, for the happier life of those whom we would guide, and for the happiness, too, of the myriad unborn who are already in our too often careless keeping.

[A final article by Dr. Saleeby in the November number will complete the series.]

CAREERS FOR GIRLS.*

VI.—THE PROFESSION OF MEDICINE.

By Dr. Jane Walker.

The first quality required by the would-be medical practitioner is a real sense of "vocation." No one should take up the profession of medicine just because their fathers have been doctors, "because we have always had a doctor in the family," or just for the sake of earning a livelihood. The importance of this primary qualification fortunately need not be driven home in the case of girls as hard as in the case of boys, because the number of women who take up medicine on any grounds except those of real preference is still somewhat small, and is likely to remain so for some considerable time to come.

The second quality, no less essential than the first, is average good health. There have, of course, been notable instances of men and women who were physically delicate rising to considerable eminence in the medical profession, but they have been very exceptional people. And the fact remains that the practice of medicine is arduous in character, involving much mental and physical strain.

The third requisite — not nowadays so important as the other two — is enough capital to live on during the student period of training, and also during the more weary time of waiting for patients, which must be faced by those who select private practice as their branch of the medical profession. The financial aspect is, however, not nearly so serious a one to-day as it was fifteen or twenty years ago. There are so many more scholarships obtainable which considerably lessen the amount of capital the student has to find; indeed, a very capable student may, by winning several scholarships or bursaries, succeed in defraying the whole cost of her student life and training. No woman who is suitable physically, and has a real vocation for studying and practising medicine, need feel that the lack of money makes an insuperable barrier.

But it is after she is qualified that the present-day woman medical practitioner is in such a very fortunate position compared with the state of things some years ago. Then the period of time immediately following qualification was the hardest to bear with equanimity that befel a medical prac-

* Previous articles have appeared in May, June, July, August, and September.

titioner. Now resident posts await her on every side: in children's hospitals, women's hospitals, Poor Law infirmaries, and in some general hospitals.

If a resident post is not desired, or for the moment is not available, then there are numerous non-resident posts to be had: school medical officers, lecturers on hygiene, and so forth.

A large number of students at all medical schools for women are studying medicine with a view to going out to the mission field as medical missionaries. And for some time to come there will be a considerable demand for trained, well qualified women medical missionaries all over the world. There will also be demands (probably in increasing numbers) for highly qualified women doctors who are not missionaries, as superintendents of hospitals for women, and as private practitioners in the large towns, not only to attend native and Eurasian women and children, but also the women of our own and other Western nations. But there is a further important rôle that woman doctors are being called upon to fill—viz., as lecturers, teachers, and professors in the various hospitals and medical schools, training Eurasian and native women to practise medicine. Up to the present time, the work of supplying medical aid to the women of India has been by means of medical missionaries, and by doctors sent out under the auspices of the Lady Dufferin Association. The latter has fallen into great disfavour, and there is a serious attempt to deal with the many and important grievances under which women who were employed by that Association laboured. Those grievances comprised liability to sudden dismissal, a position subordinate to men of equal or lower standing, and lack of provision for increase of pay or allowance on retirement, and the conditions were such that the best type of woman doctor was not attracted to the service. It is a matter for regret that the Government of India has definitely decided against the creation of a State Medical Service for Women on the same lines as the Indian Medical Service for Men. The Government has, however, approved of a grant of £10,000 per annum for a medical service under the Central Committee of the Dufferin Association. This service is to consist of twenty-five first-class women, and it will be chosen by a sub-Committee of the Dufferin Association in India and by a small sub-Committee consisting of one medical man and two medical women in England. These two sub-committees will examine candidates as to physical fitness. The candidates must not be less than twenty-four or more than thirty years of age when appointed, and they will have, except under special circumstances, to retire at the age of forty-eight. They will have independent medical control of the hospitals to which they are appointed, and such administrative control as the various local committees sanction. There can be no doubt that this whole scheme marks a great advance on anything that has gone before in the position of women medical practitioners in India. There are, however, several points in the scheme where the opinion of women doctors of balanced mind and experience, both in this country and in India, might well have been asked before the scheme was formulated in its final form. It is of little use for the promoters of this or any other scheme to say that they have the best interests of women at heart, and that they are in no way hostile to medical women, while at the same time they give them no chance of expressing their views in a matter which so peculiarly concerns themselves.

But to return to the subject in general—the medical profession as a career for women. How shall a would-be student proceed to attain her object?

The oldest and most important medical school for women in the kingdom is the London (Royal Free Hospital) School of Medicine for Women, 8 Hunter Street, Brunswick Square, London, W.C. This school was founded in 1874. At that time only two women were on the Medical Register: Mrs. Garrett Anderson, M.D., L.S.S., and Dr. Elizabeth Blackwell. The story of the founding of this school, which may fairly be called the Mother School of all British medical women, is a fine record of perseverance, determination, and courage, and its gradual progress to complete and assured success forms very interesting reading. A very clear account of its course up to 1905 is found in Mrs. Thorne's little book, "Sketch of the Foundation and Development of the London School of Medicine for Women." The students of this school receive their practical medical instruction and training at the Royal Free Hospital, where they are eligible for resident posts after qualification, and where also women have during recent years been on the visiting staff. This institution is still the only general hospital in London where women are on the staff, and this medical school is the only one in England where the women students are in contact with students of their own sex only during the whole course. There are advantages and disadvantages in this arrangement at the present day, but there can be no doubt as to the wisdom of restricting the school to members of the same sex at the beginning. Moreover, its early struggles and anxieties brought its students together, and thus gave them a great feeling of union and *esprit de corps*, as well as intense desire for the honour of the school. For this reason, a present-day student of the London School of Medicine for Women has a background of heritage and tradition which often, maybe unconsciously to herself, lifts her up and keeps her on a high level both of work and conduct. It is well that all this should be remembered, and from time to time it should be retold afresh to act as a stimulus to future work and effort. No other school of medicine for women has these features to such a marked extent.

If, however, a would-be student cannot study in London, there are medical schools in connexion with the Universities of Manchester, Leeds, Newcastle, Birmingham, Bristol, Liverpool, and Sheffield. Information about all these medical schools can be obtained from the Registrar. At most of the provincial Universities there are women's hostels or halls of residence where women can live during their students' course. In Scotland women are admitted to all the University examinations on the same terms as men. On graduation at the Glasgow University they become members of the General Council of the University. Women students have the same privileges as the men students, and almost all the classes are mixed. In Edinburgh, women students of medicine do not attend the University classes, but extramural classes specially recognized by the University Court.

In the Universities of St. Andrews, Aberdeen, and Dundee, women students are in exactly the same position as men. There are halls of residence for women students in Glasgow, Edinburgh, and St. Andrews. In Ireland, the University of Dublin is open to women on the same terms as to men. All the constituent colleges of the University of Ireland—*i.e.*, University College, Dublin, and University College, Galway—are open to women medical students. At Cork, women have a separate club house in the University grounds and two hostels—one for Roman Catholics and one for Protestants. They also have a separate dissecting room. In connexion with this College there is £2,000 per annum available for scholarships, all of which are open to women. The Queen's University, Belfast, is also open to women.

In Wales, the Welsh University is fully open to women. The constituent colleges are at Aberystwyth, Bangor, and Cardiff, though it is only in this latter College that medical students can carry out the full curriculum. All women students are required to reside at Aberdare Hall unless they are living with their parents or guardians.

It is almost unnecessary to state in so many words, what will have been gathered from what has already been said, that the profession of medicine is arduous and absolutely absorbing. No one can be a satisfactory doctor who does not give her whole mind and time to her profession. In the shortest reckoning, it will have taken her five years to obtain the simplest and easiest qualification, and this, important and necessary as it is, is not the end. There are probably few of us who have not felt, after qualifying, more ignorant than ever before in our lives. To be a doctor is to be a permanent and perpetual student; it is to keep the mind alert, the heart young, the brain receptive and keen.

To sum up briefly, a young woman who desires to qualify in medicine must have (1) a vocation; (2) sufficient robust health to allow for a good deal of physical strain; (3) good average brains; (4) but least important, the possibility of a certain amount of pecuniary assistance. Then she must decide what school she will enter. Having decided that, she should communicate with the Dean of the particular school she has selected, who will henceforth be able to direct her at every subsequent stage of her career.

EDUCATION AT THE BRITISH ASSOCIATION.

By H. Bompas Smith,
Professor in the University of Manchester.

Australia is rich in educational experiments and in broad-minded and enterprising teachers. The educational problems with which she has to deal are largely the same as those which meet us here, and the methods she adopts for their solution are well worth our careful study. We doubt not that our friends who have attended the British Association meetings will come back filled with fresh ideas and with their enthusiasm strengthened by contact with Australian teachers. We note with satisfaction that many of the papers in Section L were read by representatives of Australian institutions, and this fact is of good omen for the usefulness of the meetings.

It is obviously impossible for one who was not present at these meetings to offer any opinion upon their success, but we have full reports or abstracts of a good many papers, and these are of sufficient interest to call for comment. I shall, therefore, not attempt any estimate of the value of the meetings as a whole, but shall confine myself to the easier task of calling attention to some of the more important papers as individual contributions to educational science.

In the case of the papers of which only abstracts or short reports are now available, detailed criticism is impossible, but many of these papers were evidently such as we should have heard with enjoyment and with hearty concurrence in their general line of thought. Thus Dr. Kimmins appears to have given an admirable survey of the London trade schools. This was what we should expect of him, and we can only wish that we had been there to listen. Again, Mrs. C. M. Meredith's address on "The Teaching of Domestic Subjects in Primary Schools," must, so far as we can judge, have been both practical and suggestive. She emphasized the importance of making "housecraft" the central subject, of which cooking, sewing, &c., are subordinate parts. She also urged the desirability of appealing to such motives as the love of play, the desire to help and do real work, and the interest in simplified or primitive life. Dr. Gray's paper, on "School Training for Public Life," summarized views which he has frequently put forward. Whatever we may think of the details of his proposals, we all recognize that he is doing good service by calling attention to the need for providing a definite preparation for imperial citizenship. Among the other papers, special mention should be made of Prof. Mackie's account of the training of teachers in New South Wales and of Mr. Story's address on "Educational Pioneering" in Queensland. Prof. Mackie is the Principal of Teachers College in Sydney, and the abstract of his paper gives a very interesting account of the progress of that institution, and deserves to be studied by all who are concerned with the training of teachers in this country. Mr. Story told of the efforts of his Department to provide at least the rudiments of education for the children in a country where in some cases it would take a fortnight to reach the nearest school. He described the institution of travelling teachers, Saturday schools, week-end schools, part-time schools, house-to-house schools, and railway construction camp schools. The result of these and other expedients is that only 6·82 per cent. of the children between five and fourteen have not learned to read, a lower percentage than in any other Australian State.

The two addresses of which the full text has been printed are the presidential address to the section by Prof. Perry and Prof. Armstrong's paper on "The Place of Wisdom (Science) in the State and in Education." The question of the teaching of natural science was given the first place in the proceedings of the Section, and these two papers were, we may infer, regarded as the most important contributions to the discussion of that question.* They have many points in common, and advocate the same conclusions. They may therefore be considered together, and both the eminence of their authors and the character of the papers themselves render some discussion of them desirable.

It is hardly necessary to say that the papers are marked by the ability shown in everything which Prof. Perry and Prof. Armstrong write. Men of this calibre cannot discuss any subject without throwing light upon one or other aspect of it: both write with an evident conviction of the importance of their message, and their addresses are rich in forcible expressions and happy illustrations. Moreover, they are here dealing with a subject which they have made peculiarly their own. Prof. Perry has long been one of the most brilliant critics of the traditional methods of teaching mathematics, while Prof. Armstrong is well known as a leading exponent of the heuristic teaching of natural science. Our debt to each of them is great, and if I venture to criticize their present utterances it is far from my desire to depreciate the valuable services they have rendered to English education. Further, most of us will feel sympathy with their general thesis, namely, that it is vitally important for all classes of the community, and especially the governing classes, to have an effective acquaintance with scientific modes of thought and methods of investigation, though we may lay more stress than they do upon some other elements in the educational ideal.

My quarrel with these two distinguished writers is that their attitude towards the wider questions of educational theory and practice is essentially unscientific. They seem to me to suffer from a weakness which besets many very able men who have become recognized authorities in their special field of work. They appear to think that they have the right to dogmatize upon questions in which they take an interest, but of which their knowledge is derived chiefly from their personal experience. Just as experienced lawyers have thought themselves competent to settle the authorship of Shakespeare's plays, so Profs. Perry and Armstrong have no hesitation in laying down the general principles upon which our educational thought and practice must be based. Moreover, it is interesting to notice that in their discussions of these general principles they cast aside the restrictions of the logical and scientific methods to which as men of science they conform. Inaccurate statements and wild generalizations alternate with acute observations and wise reflections. The phenomenon is probably to be explained by a theory similar to that by which Freud accounts for the inconsequence of our dreams. The "censor," who as a rule represses the expression of strong but irrational emotion, has for the moment been put to sleep.

In justification of this criticism of the educational deliverances of men whom in their proper sphere we all admire, I will give a few typical quotations from the addresses we are considering. What can we think of Prof. Perry's accuracy when he tells us: "At the age of twenty or twenty-one, stale and tired with the reception of ancient learning, of other men's thoughts, he" (the boy called clever) "gains a fine scholarship at the University" (page 2). Surely Prof. Perry knows that, with few exceptions, candidates for scholarships at Oxford and Cambridge have to be less than nineteen years of age, and at other Universities the average age of scholarship winners is considerably lower. But, waiving this minor point, I submit that it is misleading to speak as if all University entrance scholarships were classical. The number of these scholarships at Oxford and Cambridge is probably unduly large, but they comprise only about one-half of all the entrance scholarships awarded, while in the other Universities they are comparatively few. These facts greatly diminish the force of Prof. Perry's argument. Again, as to the winners of classical scolarships being stale and tired, are there no schools to which Mr. Headlam's words apply? "What is it that gives the peculiar tone and strength to a strong, well taught sixth form? It is the unconscious feeling of intellectual growth and energy arising from the willing and pleased absorption in the noblest works of letters and the greatest of intellectual problems."* I do not imply that there is no truth in Prof. Perry's stricture, but I maintain that his sweeping generalization goes far beyond the facts. It is a piece of rhetoric, and not of scientific reasoning. Again, he tells us (page 6) that in primary schools "every boy does laboratory work in mathematics and science." We should be delighted if this astonishing statement were approximately true. Further, we hear that "at present English is not taught properly in any British school. The teachers are all classical

* Prof. Perry's Presidential Address was, as is usual, delivered at a special meeting.

* "Special Reports on Educational Subjects," Vol. XX, page 43.

men, who are very careful when they write Greek and Latin, and exceedingly careless and slipshod when they write English" (page 10). The teaching of English undoubtedly leaves much to be desired; but a statement like this is both untrue and grossly unfair to many teachers.

It may, however, reasonably be urged that a reformer may be forgiven if his zeal leads him into occasional errors on unimportant points. Unfortunately every one of Prof. Perry's pages, with a single exception, contains sentences which show a disregard of accuracy or else a lack of knowledge or appreciation of the facts. Prof. Perry's knowledge of the possibilities of school teaching is open to question when he tells us that a boy of eight can be taught decimals in an hour (page 10), and when he advocates the entire abolition of homework and of set lessons in almost any subject as being "utterly useless for the average boy." He shows his inability to appreciate positions other than his own in sentences like the following: "I have a suspicion that this worship of classics is like one's fondness for the rhymes, often rubbishy rhymes, that associate themselves with our infancy and boyhood" (page 2), and, "The schoolmaster calls a boy clever because he is exactly like what the schoolmaster himself was when a boy, but I fear that I place little value on the schoolmaster's cleverness, whether as a boy or a man" (page 11). I do not deny that there is a modicum of truth in pronouncements such as these, but the attitude of mind displayed appears to me neither helpful nor scientific.

The fundamental weakness of Prof. Perry's paper is its failure to recognize that educational problems must be attacked on scientific lines, and that, as a matter of fact, such methods are being applied with increasing success both in educational theory and practice. It may be admitted that the science of education is at present undeveloped, but at any rate we have reached the stage at which it is possible to describe and classify a good many facts, and to lay down provisionally a certain number of general principles. We have therefore the right to ask that any serious discussion of educational questions should be conducted on scientific lines, and that it should take account of the results which appear to have been established. The time has gone by when we could be content with rhetorical generalities based upon the writer's own experience to the neglect of the conclusions at which the great body of workers has arrived.

Prof. Perry's attitude, however, is indicated with his usual felicity in the first sentences of his address. "I wish to make some general remarks upon the science of education. As in the chapter which was entitled 'The Snakes of Iceland,' and which consisted merely of the sentence, 'There are no snakes in Iceland,' I might finish this address at once by saying 'There is no science of education!'" It follows that, instead of looking upon the growth of our educational institutions, in spite of their many imperfections, as a process of rational evolution, he heaps upon them almost indiscriminate abuse. As regards educational theory and the psychological doctrines upon which much of it is founded, he seems unaware of the existence of experimental psychology or of any recognized body of pedagogic principles. He is content with categorical assertions upon questions which can only be settled, and which are being settled, by strictly scientific investigations. For instance, "things requiring memory," he roundly tells us, "can be learnt only in early life" (page 12). He thus not only ignores the results obtained by the experimental investigation of memory,* but apparently fails to recognize that the matter is one to which experiment is appropriate. The same unscientific attitude is shown in his dogmatic description of the psychological differences between the sexes (page 17). If any competent psychologist thought this description worthy of discussion, it would be entertaining to hear his views.

Prof. Armstrong is less inaccurate in details, but I cannot think that his general attitude is more scientific than Prof. Perry's. His abuse of our present methods of education and of those by whom they are employed is at least equally indiscriminate. "What we are pleased to call education is, for the most part, so futile in substance and in its results that . . . . in my opinion, we should all be the better without most of it, men and women alike. So far as so-called intellectual education is concerned, learning to read seems to me the one thing worth doing; at present it is the thing most neglected in the schools" (page 8). Prof. Armstrong's ideals seem to have been least inadequately realized by the old Science and Art Department, and he appears to regard "The Teaching of Scientific Method" as the last word on science teaching. The wretched treatises on psychology or logic, of which Prof. Perry speaks, are probably not less distasteful to Prof. Armstrong.

I have called attention to the weakness rather than to the strength of those two addresses, partly because I think some protest should be raised against the action of the Education Section of the British Association in allowing papers like these to be read at its meetings. In no other section would the readers of the chief papers be men who are out of sympathy with the scientific progress of their subject. The new science of education is fighting for recognition, and we should have hoped that the British Association would have thrown its whole weight upon the side of progress. Section L, however, still halts between two opinions. We can only trust that in the future the true scientists will gain the upper hand, and that without fear or favour the section will devote itself to its proper work, the advancement of science in the field of education.

* See, for instance, Watt, "The Economy and Training of Memory" (page 29). As a matter of fact, it is not true that our memory is strongest from the first few years of life up to about the tenth or thirteenth year, and then begins to weaken. This has been proved by experiment." A sketch of the evidence is then given.

MONTESSORISM IN SECONDARY SCHOOLS.*

By Norman MacMunn.

To-night I feel something like a shipwrecked mariner who has reached land at last: for to read a paper before such mixed audiences as those which I have had to address hitherto is to commit oneself to a very anxious and very hazardous task. Here I can at least feel sure that certain postulates have been already conceded to me. I should not, I take it, pass for a hopeless lunatic were I to assert that the last thing in the world that a natural child wants to do is to loaf; or if I alleged that a child prefers to work actively because it is its nature, and not because it wishes in the slightest degree to make war upon adult humanity; or, again, were I to hazard the opinion that a child's love of play corresponds precisely with that love of work which has been found at rare intervals among the grown-up portion of the community.

This sort of preliminary foundation-work, I think then, I am entitled to neglect. But I dare not, and I could not if I dared, omit a brief word expressive of the wonderful inspiration I have gained from the work of a woman who to my prejudiced and possibly over-fervent mind has — if human beings are to be valued by the measure of their probable contribution to eventual human progress—already taken her place among the very greatest personalities in the history of modern civilization. Like all truly wonderful people, Montessori has quickly convinced the world of very small people that her message has nothing new for them—a truth which is a perfect truth, but which does not in the least degree in the world redound to their credit. No great reformer has ever drawn his inspiration entirely from within; and the greatest achievements of reform have always been the drawing together of the threads of contemporary tendencies into one wide and compelling principle of action. And to Montessori we owe the special debt of gratitude that for the first time in the history of education she has comfirmed the conclusions of the philosopher and of the seer, as well as of the empiricist, along a line of pure and positive scientific reasoning.

This said, I shall start without more ado on the assumption that for a child work and play are precisely the same thing in essence, and that in practice we can always turn work to play or play to work by varying the pace at which either is pursued. Slow down the pace of football, and the boy will be slowly and unwillingly pushing his way through an obstruc-

* Read at the Montessori Conference at West Runton, July 25, 1914, and published by arrangement with the author and the Montessori Society.

tive crowd to reach some wished-for goal; quicken the pace of the dullest of reasonably easy interrogatories, and you get a series of the most fascinating puzzles. The sole problem that remains to be solved, then, is: By what means can we so quicken the pace of class-work that the young mind will spontaneously look at it in the light of play?

I have tried in every possible way to arrive at some solution which would not imply the abandonment of the collectively taught class. For I had to be sure that the remedy could not be found here before invoking a method which should dispense with collective teaching and replace it with the mutual teaching in which I have come to believe as the real hope of education in the future. But, try as I might, I was unable to find any means by which an active and healthy child could be persuaded to enjoy doing its work by proxy, or take joy in listening to other children answering the question it was longing to answer itself. I need not, I think, with an audience so intelligently sympathetic as the one which I have before me at the present moment, show by a process of elimination that all collective questioning must inevitably fail to interest a young child for any length of time together for the simple reason that the healthy child wants to act and not to watch others acting, to answer questions that are arranged on the plane of its own understanding and not on that of another. May I assume, then, as a perfectly safe hypothesis that there are extremely few children for whom the class-work of the ordinary school has the least real and personal appeal?

Now suppose you put two boys to work together who are much at the same point of attainment, who are provided with material which is as nearly as possible adapted to their needs, not only will you immediately notice in both children an extraordinary sense of relief, but you will find within a very few minutes that they have discovered that they are playing a wholly delightful game. Small faces will be flushed, eyes will have brightened, and you will very soon hear remarks as to the quick passing of the time, as to the fun that it has been, and other naive statements that are meant not as a compliment to a method, but as the fervid statement of the common feeling of the class. I do not say that you will get the same result from a boy in his teens, for such a boy has been corrupted to the very roots of his nature by that artificial antithesis between work and play which I maintain has been imposed upon him literally against the grain of his own original tendencies. If sympathizers will content themselves by experimenting at first with boys of not more than thirteen years of age, they will both get a better result, and they will assuredly have proved that, without the evils of repression and *with* a liberal provision for the real activities of their children, the time will come when this vicious separation of work from play will be as rare in the boy of sixteen as we can now make it in any boy of anti-adolescent years. Remember that but yesterday we were told that Montessorism was all very fine for boys of four, even for boys of seven, but that a boy of twelve would very soon show that he not only needed, but rather liked a little of the mailed fist. Well, I venture to say that we have proved up to the hilt that they were not only wrong, but as far from being right as one is able to go even in this world of constant fallacy and self-deception. Indeed, nothing has surprised and delighted me more than to find how, without even the priceless boon of free development in earliest years, a boy of twelve can quite lose the sense that French verbs were invented by monsters among the giants for every school-going dwarf. Ladies and gentlemen, I am prepared to go before a Commissioner for Oaths and make the most formally correct declaration that a small boy of ten has refused picture books because, as he has told me, he couldn't leave his verbs. He was not a little "swot," to use a schoolboy word—in fact, his father unwittingly paid the highest compliment to me when he remarked: "Yes, Reggie will do anything but work." This, of course was the precise reverse of the truth, for Reggie was nature's hard worker who had not yet been converted into the particular kind of loafer—or artificially concentrative worker—whom most schoolmasters adore.

When I reflect on the grossly clumsy material with which I have managed to awake the constant enthusiasm of three of my lower forms, and to maintain a high level of interest among their seniors, I cannot help feeling that, with the publication of carefully contrived printed matter and the application of it by understanding teachers, we are on the eve of the greatest intellectual renaissance in the history of the world. To an ordinary audience I dare make no such seemingly preposterous statement, but most of you have seen a vision when Montessori came into your lives, and I venture to hope that I am not alone in believing that a childhood spent in voluntary creation, in voluntary research, and in voluntary absorption of knowledge will give a man who, as compared with the products of existing schools, will be a wonder both in practical efficiency and in general social value.

My greatest anxiety just now is as to the success of my earliest printed textbooks. If these pay their way, the publishers will ask for more; but we have certainly not yet printed enough to be able to test the method properly even in one out of many subjects. The scope for material is practically infinite. I shall not consider that we have really set the ball rolling until at least one hundred little volumes have been published to cover four or five of the principal subjects. And the unfortunate thing is that, short of a fine faith and unlimited enthusiasm on the part of experimenters, we may never reach anything like that amount of necessary material.

For those who have not read any explanation of my method, I will now endeavour to give some idea of the principles on which my boys pursue their work in partnership. In French conversation each boy has before him either a red book or a blue book. These, while of as nearly as possible the same degree of difficulty, pursue a slightly different treatment of action and therefore of vocabulary. In the left-hand margin of the page are what we call for want of a better term, "stage directions," telling the questioning partner what action to carry out while he is asking the question before him. He then checks his co-worker's reply from the answer which always follows immediately in the book.

Later on there is no reason why, with the same marginal instructions, very little boys should not make animals and men and staircases and endless other things in plasticine or in wood—why Goethe's puppet show, besides training them in dramatic principles, should not give them the foundation of a complete vocabulary of action not only in foreign languages, but, for very little boys, in their mother tongue. In fact one of the dreams of my life is that boys shall leave school with a power of expression in their own language such as is only found at present in those of special gift or special training. Towards this end I have made much use of missing word games, which I think have made a more general appeal than any single device I have so far employed. The missing word is sometimes a word necessary to make sense, sometimes the correction of a given faulty word, sometimes a synonym, sometimes even throws light on some problem of spelling or of pronunciation. A device in French which has been popular both in lower and in middle forms has been a sentence-building game, where short phrases with translation added are combined together in every imaginable way.

For middle forms I hope shortly to issue sectional textbooks of conversational French grammar.

When I come to other people's subjects I feel more diffidence in the laying down of principles. But I feel sure that the classical languages lend themselves ideally to partnership treatment, more especially if the Perse school methods are going to be widely adopted. In geography there are, of course, endless applications, from plasticine modelling — with stage directions again—to missing word tests, to guessing games, to map-reading contests, and to the judgment of distances and of routes as checked by an A B C railway guide. The detail of history could easily be made the subject of questioning between the partners, the richer and more dramatic and more intellectual aspects of it being studied individually through biographies, through fine editions of reliable general books, from anything short of the old-fashioned textbook. To my mind there is no branch of any subject that is incapable of adaptation to the needs of work in partnership; but here, it must be clearly understood I am not implying that I am prepared to say precisely on what lines the adaptation is to be made. What I mean is this: All that partnership material demands is that it should consist of problems capable of being reduced to a series of either question and answer or to a series of simple puzzles. I fancy the missing word, humble device though it be, is going to be our most general stand-by when other contrivances are found wanting. Take such a simple

problem as teaching the contemporaneity of great authors, or of great authors with great painters. Any teacher present will agree with me, I think, when I say that the average boy is extraordinarily weak in any adequate sense as to the period at which a given great figure in literature or the arts was alive. Well, all you have to do is to begin a sentence with, for example, "Goldsmith was a contemporary of (——)," and place in brackets for the use of the questioner the name of Goldsmith's contemporaries, and I warrant you will find that your boys will see an extraordinary fascination in trying to place the right people together. The old-fashioned pedagogue would here twit me with a very mechanical ideal, but, if I did not content myself with murmuring something about a glass house, I would inform him that I could prove to him that the exercise is only theoretically and objectively mechanical: to the boy's mind it presents itself in the light of a most stimulating and far from unintellectual game. And I am a good enough Montessorian to say that, if boys take to it as the fish to water, that is sufficient evidence for me that it is going to do them good.

I turn now to larger questions of the future, and if I have left certain points connected with partnership teaching rather vague, I shall be glad to endeavour to throw further light upon them by the answering of questions at the close of this paper.

Now I think that partnership teaching has given us a clear line of approach to the commonwealth school—the natural sequel to the Montessori training in early childhood. I do not suggest that it is the only line of approach, and, for the child who has had the benefit of the Montessori class, I believe that purely individual self-teaching is perfectly possible. But we who teach in secondary schools have a very special problem, in that we have to deal with children at various stages of corruption by repressive education. It is quite useless to say to such children, as we very well might say to a child brought up in freedom: "I am sure you will like geography. Here is a book; take and read it." If the child were really free, he would immediately say that he did not like it a bit; that many other children never liked it a bit, and that he had *had* to do it at the school from which he had come. And by what means could we tempt this child to work individually at a subject against which he had an almost ineradicable prejudice? But start him in a partnership, the very novelty of which secures his attention in those precious few moments of introduction, and a game association will quickly be formed which I go so far as to say will completely obliterate the disagreeable impression derived from unwilling and inactive work in the past. Here then I cannot help thinking that we have the solution of the problem of introducing post-Montessori teaching for those who have not enjoyed freedom in earlier childhood.

I am asked many questions about the form of self-government which the boys have devised in my various forms. Well, my Form III will have nothing of the machinery of government. For one thing they are far too happily busy to be bothered with it; for another, they are too proud of their capacity to work in complete freedom to care for laws that imply a distrust of themselves. One new boy, having heard that some of the higher forms had their chairman, proposed that the third form should follow their example. There was an instant and unanimous protest, and ridicule was poured upon the bigger boys for wanting to spend their time in talking about what they ought to do instead of in doing it. And it is the simple truth, and nothing more or less, that my younger boys have been too happily active to have had need to lay down the lines of their own activity. With the bigger boys it is otherwise. Their initiative, both moral and intellectual, being inferior in degree, they feel the need for the strengthening influence of the collective sanction of their class-companions. In a completely emancipated school I do not think that any machinery of government would be called into action in the classroom itself. It might not even be strictly speaking necessary in boys' hours of recreation; but I think it has its clear uses here, as indeed have all forms of voluntary organization which offer a training in citizenship. This idea will have impressed itself very definitely on the minds of those who have visited the Little Commonwealth.

I don't know how many of my audience have resented the mixing of boys of the most widely differing ages in the ordinary class. But there must have been many who have come to the conclusion that to associate together in their work boys of thirteen and boys of seventeen merely on the grounds of a parity of formal intellectual attainments was against every principle of child psychology. The contrasts of personality and the nature of a fitting personal appeal before and after adolescence obviously differ to the widest possible extent. Now for the first time I see the way to a complete and wholly healthy revolution in the arrangement of the school class. With partnership work and the possibilities it offers in adjustment to individual needs, we can class boys according to no principle of classification other than that of the age they happen to have reached. To my way of thinking we have here a factor of incalculable importance. No longer need we fear to be babyish in the spirit of our work for half our classes, or too advanced in our ideas for the other half. However much difference there may be in mere intellectual attainments. there can be only one general standard of psychological appeal instead of three or four.

I cannot emphasize too often that I am in no way in favour of a rigid adherence to the principle of partnership work as the sole possible provision for the free activities of children. The only point on which I stand firm is the view that the sole solution of the problems of education lies in the free, self-governing school. If free activities are best evoked by the combination of partnership teaching with the dramatic method, with research work in the library, and with other devices calculated to associate work with the childish instinct to work in play, then I shall be the first to welcome this more diversified program, and to see in it all that really matters—a way to evoking spontaneity and to giving the children room in which to grow. But I cannot help saying that those who are inclined to be sceptical of partnership work have a curious aversion to showing me a better way of introducing life and happiness into the schoolroom. Well, if their implicit contention is that existing schools give us all that we need either of happiness or activity, either they or I must be suffering under a very dangerous delusion. And it is certainly very strange that the happy work which the ordinary schoolboy is alleged to be carrying out with such breathless excitement cannot admittedly be secured at all without a complicated system of rewards and punishments—unless, indeed, these are added as a check on a dangerous degree of enthusiasm and to provide for the possible perils of overwork.

Now, ladies and gentlemen, I cannot refrain from saying a few words about the general outlook for our movement, for the lesser problem of the emancipated secondary school includes the greater problem of child emancipation. Well, there are those who will tell you that the movement must evolve, that we must prove things in practice, and the like. May I say that I believe in the bottom of my heart that there can never be any practical proof that will appeal to the type of mind that is incapable of understanding the principles of our theory? For myself, I dare not hold back for one minute from the work of spreading the new truths on which Montessorism depends for its existence. We have heard a new cry of the children. What right have we to sit still for one moment once we have heard that cry? Are we to spend years in academic discussions as to whether the child ought to be crying, or to push on to its rescue, and help to dry its tears not this one time, but for ever? And every minute that we hesitate means not only the endangering of the welfare of every child we know, but almost a wilful retarding of the speed of human progress. Let us look with inward contempt upon the man who wonders whether the new child will know more or less of Greek accents or of the manufactures of Galashiels, and let us honour first that simple mother whose first prayer is that her child may grow up wise and strong and beautiful. And thus our missionary work begins now and must be incessant. No one must be too humble to hear our message. Our audience is the collier and the nursemaid and the workhouse master just as much as the Rector of a University or the playful patron of every new movement under the sun. Indeed the time will come when the amateur supporter will be a veritable thorn in our flesh, when we shall have mentally to impose a test of truth and ardent faith on all who claim admission to our ranks. If the Montessori Society has by its own will been doomed, I can only say, "Let a wider league for the emancipation of the child take its place. And let its members get to work with all the childlike ardour and the simple faith of the children they

are seeking to serve. Let them think of the simple penny pamphlet for the simple mother as well as of drawing-room meetings at which our new toy will be praised to our faces and sneered at behind our backs." We have first to show that we are in earnest—which very few people will as yet believe. If there is anything that English people hate and capitulate to in order to save themselves trouble, it is a really earnest man. Indeed, many a good cause has been won by sheer bluff when good reasoning would have failed to achieve its end. But I do beg of you not to think that people are going to evolve mysteriously into intelligent human beings thirsting for the light. We have to come out on to the field and give battle. And let us remember that our case is not merely positive and constructive. For some time to come our best weapon may very well be the pointing out of the hideousness and the inefficacy of existing provisions for the growth of the children. Even the man who repairs one's boots likes to talk about that. Well, encourage him to talk, and tell him a little more as a sequel to his own story.

Above all, let us beware of the apostle of compromise. That compromise exists already in, say, one-tenth of the secondary schools in England, and I urge that it is the most disastrous compromise ever devised by man. I am not at all sure that what our history books used to call the rule of the rod of iron is not better than this system of beating a boy one minute and telling him that he is the captain of his soul the next. If there is anything calculated to make a boy a time-server and a liar, it is this confusing and demoralizing alternation of disciplinary methods. And be on the look-out constantly for the wolf in sheep's clothing—the man or woman who claims to have been the most emancipatory of parents, while inhibiting, by every process of weak indulgence and unhealthy stimulus the real energies of his children.

Let us beware of being too nice on points of detail in our appreciation of different methods tending to the emancipation of the child. The movement is as yet too young for that. And, after all, the differences in the ideals of Mr. Lane, of Mme Montessori, and of Miss Finlay Johnson are infinitely less essential than their community of aim. I can only pray that the greatness of conception that one finds in the theories and the practice of Mr. Lane will pass on to others, and that our League, whenever it may come into being, will be characterized by breadth of scope and singleness of purpose.

It is the experimenter who will suffer most from the stress of scepticism, of narrow criticism, and of a failure to distinguish the essentials in results from the tawdry ornaments that have so long passed for the reality. There are no tests for true knowledge such as there are for a shallow deposit of academically acquired information. There are few people who know as yet whether a child is growing wisely and well. Only two kinds of people perhaps really know it—a good mother and a man or woman with the understanding heart of a child. Meantime, I ask for confidence in the true emancipationist whether you like or dislike the details of his methods. He cannot give you perfection, but in so far as he is a wholehearted emancipationist he will at least be endeavouring to give you good and healthy growth. He is striving to give you something better than can be given you in the best of traditional schools and something that will help us on to a truer ideal and a wiser and happier world.

The King and Forestry.—It is understood that the King has given permission for an area on the Sandringham Estate being placed at the disposal of the Cambridge University School of Forestry, in order that it may be used for purposes of experiment and demonstration.

Scholastic Facilities for Refugees.—The Academic Staff of University of London, University College, are prepared to offer hospitality to about seventy members of French and Belgian Universities, whether professors, teachers, or students, men or women, who may have found, or who find, it necessary to take refuge in this country. Special arrangements will be made as far as possible to meet the needs of French and Belgian students who desire to continue their studies in London.

A HOLIDAY IN FRANCE DURING THE WAR.

By W. Norton Thomas.

Newspapers teem nowadays with suggestions, more or less serious, as to the guarantees and concessions that will be required from Germany at the close of this war. The hard-working community of teachers might well put forward, among so many other demands, their own claim for compensation—"Germany, what have you done with our holidays?"

As a modern language master intending to study phonetics for a month at the University of Grenoble, I had a good opportunity of seeing French life in the South of France during the first fortnight of the war. I left Charing Cross by the Continental Express on Friday, July 31, when the political situation was, although very grave, by no means, hopeless. I was again reminded, however, of its growing intensity by the eager crowd waiting at the Gare du Nord, Paris, for the latest news from England. Paris seemed that night a-tingle with excitement, although considerable optimism still prevailed. My next day was spent entirely in the train, which, after skirting the Lac de Bourget, sacred to Lamartine, and passing through beautiful Chambéry, reached Grenoble about 8.30 p.m.

The Government order for general mobilization had preceded me by three or four hours, and retreat to Paris was already cut off. Carriages for soldiers and munitions had even been added to the train on its way, and the news was on everyone's lips. In many compartments women were crying, for few hoped much from the thick-typed message of the President on the mobilization placards—"La mobilisation n'est pas la guerre." On the other hand, the men were well pleased at the idea of coming to grips again with their hereditary foe, and passed the news along with a smile of satisfaction—"Ça y est."

I stepped down from the train at Grenoble into a town a-throb. The hotel proprietor seemed to think that coming at such a time for a holiday course was an eccentricity truly English. "And English girls, your compatriots, have also arrived for the course, travelling alone! . . ." His gestures were truly Gallic. The next morning, Sunday, August 2, I went to a general meeting of students, held in the University. There Prof. Rosset, the organizer of the courses and specialist in phonetics, was present to tell us there would be no official course, and that he advised students to leave France as soon as possible. He himself, as a sergeant, was leaving for the front the next day.

So ended my hopes of the Diploma in Higher Phonetics. As for leaving France, it was easier said than done. Paris was completely shut off. A few of us went to the station in the afternoon, intending to get to England *via* Marseilles, only to find every door guarded, as the trains were all required for soldiers. Some students who had gone by morning trains were forced to get out *en route* to make room for the conscripts. A little later a placard was put up announcing that no civilian could travel for at least a week. A "wait-and-see" policy was therefore necessary for us all. About three hundred students were in the town, chiefly Russians, Italians, English, and Americans. The Germans and Austrians had been ordered to leave when news of the mobilization first came, and the Rector of the University, in a farewell speech made a fortnight later, declared that they would never again be admitted to the University—"Ni eux ni leurs compatriotes."

During this extraordinary holiday at Grenoble we were not able to make many mountain excursions, since a *laissez-passer* had to be obtained each time that the boundaries of the town were passed, and to get this permit, with a crowd of foreigners besieging the police station night and day, was no easy matter. There were, however, some excellent tennis-courts in the town, so that when mountains failed tennis provided some relaxation.

At last the authorities began to run some trains, about two a day, for civilians also, and the majority of the English students decided to make a dash for home. We divided up into groups of threes and fours, each under a leader, who had the military permit and the passports for his group. It took us seven hours to get from Grenoble to Lyons, for the trains, consisting of third-class carriages only, stopped at every station. Even this paled before the next day, when we crawled for twenty-one hours, in a tropical heat, to reach Paris. Afterwards travelling was quicker, and at Boulogne we forgot all our discomforts in the joy of seeing the familiar uniforms of the English regiments pouring from their transports into the town.

Though not the type of holiday expected, this stay at Grenoble was most valuable for the insight it afforded into French national character. No witness of their mobilization can doubt that it is solid as well as gay, as capable of earnest resolve as of elegant speeches, and as determined to fight out this struggle to the end as we ourselves.

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REVIEWS.

"Blackie's Library of Pedagogics."—(1) *The Young Teacher's Primer.* By J. S. Davis. (1s. net.) (2) *Educative Toys.* By J. J. Findlay and K. Steel. (1s. 6d. net.) (3) *A Survey of Elementary English Education.* By E. B. R. Prideaux. (2s. net.)

These three volumes will certainly add to the value of this modest, but excellent, series. This appears to be the day of little books, and people will face a small book who would be repelled by a large one. Whatever may be true of people in general, it is certainly true of young teachers that they are disturbed and disconcerted when confronted with a big book on their professional work. Mr. Davis has here presented us with a very attractive volume that should form an excellent introduction to the practical side of school work. Though he writes in a broad spirit, he has always before him the actual needs of his readers as beginners in school work. The titles of his chapters give a sufficient indication of the nature of the book—Discipline, Eye Control, the Teacher's Voice, Framing Questions, Dealing with Answers, the Use of the Blackboard, the Framing of Lessons, the Illustration of Lessons, Concerning Children. These are all subjects that are dealt with in every textbook on school management, but Mr. Davis contrives to give distinction to what he writes by always keeping well in the foreground the notion of the "beginner's" point of view. Occasionally, too, as in the case of eye control and the voice, he manages to hit upon fresh points that give character to the whole. Towards the end Mr. Davis exhibits a certain amount of intelligent Herbartianism; but the more conventional readers will be reassured when they learn that he quotes, with approval, such eminently orthodox authorities as Mr. Barnett and Edward Thring. This is the sort of book that an anxious teacher may safely put into the hands of beginners over whose work he has not time enough to exercise the supervision he would like to give.

Prof. Findlay's book is of quite a different kind. It is really the complete report up to date of the various experiments in Montessori methods made in the Fielden School. Most of the material has been already published, but it is not easily accessible, and, in any case, it is very satisfactory to have it in this convenient form. Since the whole of the second report appeared in the pages of this magazine as the reproduction of a lecture delivered before the College of Preceptors, our readers are familiar with the fact that, while Prof. Findlay and his colleague Miss Steel approached the Montessori system in a critical spirit, they were not at all hostile to that system, and that their results have, on the whole, gone to strengthen the Montessori position. Our authors wisely decline to discuss the matter of origins and are content to take the Montessori contribution as they find it. They have submitted it to tests that they acknowledge to be far removed from those subject to laboratory control, but our authors maintain that this, so far from being a disqualification, is really a recommendation of their method. The mystery-mongering of the dealers in Montessori apparatus comes in for well deserved condemnation. The difference between the spirit and the letter is nowhere of more importance than in dealing with the implications of this new method, and this book is eminently sound on the point. It is interesting to find the importance attached by Prof. Findlay and his colleague to Mrs. Fisher's "A Montessori Mother." This gives us great satisfaction, since in our review in these columns we held that Mrs. Fisher's book is really more useful to teachers and parents than is the work of the Dottoressa herself. It is worth noting that Prof. Findlay lays some stress on the name "toys." One cannot but feel as one reads that there is a fresh theory coming to fruition in his mind, and that it will have some connexion with the term "educative toys." By the way, the writer of this review bought and used, some twenty years ago, a set of the apparatus for "Mentics" referred to in Prof. Findlay's text. It has gone the way of all apparatus, else it would have been a pleasure to answer Prof. Findlay's appeal by sending it to him. The third part of the book is full of miscellaneous information on the subject, and will do much to recommend the Montessori ideas to practical teachers

who are inclined to be sceptical about the visions of an Italian seer, but will be prepared to listen to a sincere, but critical, English admirer.

One is inclined to say that Dr. Prideaux's book is the most ambitious of the three; but he is so modest in his professions that one feels the term misplaced. In lecturing at the University of Liverpool he found that he could get no satisfactory account of the development of elementary education in England. He will not, therefore, be surprised to learn that American educators visiting England are continually complaining of just this lack, and, had not this book appeared, it is probable that we should have had an American thesis to fill up the gap. For saving us this humiliation Dr. Prideaux deserves our cordial thanks, and we are specially glad to render them in view of the excellent piece of work he has given us. He has preserved just the right proportion between historical treatment and the exposition of things as they are. He is remarkably successful in his introductory historical sketch. The reader gets the true perspective with the minimum amount of wading through dull facts. The facts naturally retain their dullness as facts, but Dr. Prideaux contrives to make them significant. Indeed, throughout the book he is successful in breathing into his matter the breath of life. There is no lack of facts on the purely administrative side. But our author does not stop at facts of this kind as the manner of some is. He proceeds to the things that matter from the truly educational point of view. His treatment of the training of teachers is excellent—we suppose it is because of the limitations of the adjective "English" that we do not find that account of Stow's work that could not be omitted from an account of "British" education—and his account of the development of the curriculum is just the sort of thing that usually does not find a place in books with an administrative bias. Teachers will be specially interested in his treatment of the separate subjects, though they will probably be less keen on his sociological theory. But here, by the beneficent law of compensation, our author will rouse the enthusiasm of a different type of readers, and it takes all sorts of readers to make up an efficient public for an author. The appendix is a very valuable addition to the book, supplying, as it does, a great deal of information in statistical form.

The Montessori Manual. By Dorothy Canfield Fisher. (5s. net. Kegan Paul.)

When Mrs. Fisher's "The Montessori Mother" was reviewed in these columns, we spoke of it in the highest terms because we regarded it as the best book at that date on the Montessori system. Since then we have had Dr. William Boyd's "From Locke to Montessori," which takes the first place among philosophical criticisms without superseding "The Montessori Mother" as a practical exposition. The present manual in no way takes the place of Mrs. Fisher's previous book, but rather supplements it. We have here a practical guide that may, with confidence, be put into the hands of mothers or teachers who intend to apply Montessori principles. The book appeals primarily to mothers, "but it is also hoped that teachers will receive valuable hints from the suggestions in its pages, which their greater experience and professional training will enable them to expand into schoolroom exercises." Mrs. Fisher will at once conciliate the critical and well-read teacher by the way in which she introduces the Montessori contribution. Instead of the usual arrogant claims, Mrs. Fisher puts the case truly in the recapitulatory questions at the end: (1) "Who is Dr. Montessori?" (2) "What facts about children did she rediscover?" This word "rediscover" puts the professional teacher in the proper frame of mind to receive the Dottoressa's message.

Naturally there is a great deal about the Montessori apparatus; but no one is more fully alive than Mrs. Fisher to the dangers of over-estimating the mechanical side of the method. She is continually on her guard, and keeps the reader on his guard, against substituting the letter for the spirit. The exposition of the use of the apparatus is admirably done and is greatly aided by the many excellent graphic illustrations, in which colour is used where necessary. No one who reads this book intelligently should have the least difficulty in making the most profitable use of the recognized apparatus, while in addition such suggestions are made as will enable mothers and teachers to invent new pieces of apparatus to suit the special needs of their young folk. But, as an experienced mother, Mrs. Fisher knows that parents are mainly "concerned with the prickly questions of obedience and the general disciplinary atmosphere of the young child's life." Accordingly she devotes the whole of the final chapter to this most difficult subject. Life she regards as a sort of moral steeplechase, in which the Montessori apparatus supplies the appropriate obstacles for the earlier stages. But the mere apparatus soon disappears from the discussion as Mrs. Fisher gets into grips with her real problem. There could be no more wholesome reading for the anxious, and especially over-anxious, mother than the sections dealing with "Intelligent Obedience" and with "The Management of the very young Child of Unreasoning Age." When we come to "How to Avoid a Brain-storm," we may, as English people, be a little sceptical about the violence of the cerebral disturbance involved. An English writer would hardly say of a "naughty" little one that "the child, for all practical purposes, was insane." Making allowance, however, for American modes of expression, we cannot but regard the advice here given as in the highest degree satisfactory. Parents in particular, after reading this book, will lay it down with the conviction that it was written by one who knows the real difficulties of the training of very young children and who answers just the questions that every mother is always asking.

Geography.

Revised Suggestions for the Teaching of Geography. (1d. Board of Education.)

Nine years have elapsed since the last issue of these "Suggestions," and in consequence of the careful checking of educational experiments, the Board of Education now feel that they can "give a more definite and concrete expression to their views on some points than was possible in 1905." Instalment No. 7, dated February 1914, relating to the teaching of Geography, is a twenty-four page pamphlet intended to replace Chapter VII, pages 40-46, of the 1912 reprint, and contains much more material. Appendix III, pages 95-103 of the 1912 reprint, which contains the specimen schemes for teaching geography, has not yet been re-issued, though it is obviously intended that this Appendix shall be modified. Its publication as early as possible is desirable, even though page 24 of the present Circular contains a summary of the suggestions which is intended to assist teachers in the framing of their own schemes.

The remarks in Circular 834 are grouped under the heads: (*a*) Introduction, (i) the Arrangement of School Courses in Geography, (ii) the Use of Geographical Books, (iii) Maps and Atlases, (iv) Use of the Globe. The form is rather better than that of the 1905 issue, viz.: (*a*) Introduction, (*b*) Children under Seven, (*c*) Younger Scholars, (*d*) Older Scholars. The value of geography as a study medium for observation and reasoning is stated in the opening paragraph, and there appear to be indications that the Board believe that geography as a subject may be commenced at an earlier period in the child's school career than was suggested in 1905. There is no opening definition of *formal* geography in the present circular, and the omission is an improvement. Paragraph 3 hints at various correlations with other subjects, and this is considerably extended later. It is suggested that one to one and a half hours per week proves sufficient for the teaching of geography; the lower figure—say, about forty hours per year—does not appear to err on the side of excess and would certainly prove too small if the geographical correlations of the other subjects were neglected.

In the thirty-eight paragraphs devoted to the arrangement of the school course there is a great deal of inspiring material, and, throughout, one is impressed with the very real desire of the Board to cater for all tastes; the elasticity of treatment allowed will give scope for still further developments of the subject. In this part of the Circular there are sections devoted to first stage, second stage, third stage, and

special methods of treatment; the last being again subdivided into physical, economic, and historical.

Paragraph 8, warning against the learning of definitions by rote as a starting-point for geography work, has been considered sufficiently important to be reprinted, practically without alteration of wording, from the 1905 issue. Fortunately this practice has now diminished to such an extent that there is very little need for the caution. Paragraph 9 indicates a decided change of opinion from that expressed in the last issue. It is now realized, and rightly so, that detailed work dealing with the British Isles frequently proves of very little service to the budding geographer. The British Isles rank as one of the most difficult units for accurate geographical study, and the work in elementary schools should first aim at gaining a knowledge of the great world units or natural regions and then should trace contrasts and comparisons with the home area. The Archimedean spiral system, whatever be its theoretical value, works but poorly in practice. The Circular disapproves of the treatment of the continents in any so-called conventional sequence, and further suggests that the continent is not of necessity a good geographical unit. Paragraph 14, which repeats the warning against the teaching of arbitrary definitions, contains a sentence that is by no means clear. By an *extreme climate* we do *not* usually mean one "where the sunshine is bright and often continuous from dawn to sunset in winter and summer alike, where rain and snow are almost unknown except at the change of the two seasons." Paragraph 19 speaks of the importance of what might be termed "grocer's shop" geography, and here a hint might have been included that a school collection of labels from packages, boxes, and tins of home and foreign produce, possesses considerable value for teaching purposes. The advantages of lessons on current geographical topics from the newspaper are mentioned, and although we hardly expect an official circular to give trade advertisements, yet some mention might have been made of the excellent Geographical Supplements published from time to time by a London daily paper which has recently been reduced in price. Paragraph 21 appears to contain an unnecessary statement in the sentence that "it is a waste of time to compel a child to learn the names of all the capes, bays, and islands round the coast of Britain." The practice has surely been discontinued by those teachers sufficiently interested in the subject to peruse an official paper on the teaching of it. In Paragraph 29, the word "climate" appears to be restricted to temperature, for prevailing winds and rainfall are mentioned as separate items. Paragraph 31 is very valuable, but in speaking of the Mediterranean region a point might have been made of the relative absence of the grasses in many parts, olive oil replacing butter, and so on. The fact that "there was corn in Egypt" would then have an important bearing on other matters. Paragraph 43 speaks of the advisability of introducing modifications in a course for older girls. Where possible, modifications should be introduced quite early on account of the usual differences in other training, particularly with reference to such subjects as scale drawing, manual instruction, &c.

The section on the use of geographical books contains an interesting set of questions which demand "library" work on the part of the scholars; four of the six questions deal with economic or commercial geography, though this particular aspect of the subject has received rather scant treatment in Paragraphs 40 and 41. In the list of reference publications given in this section some mention might have been made of such a periodical as *Bradshaw's Continental Railway Guide,* which can be made the source of much very interesting geographical study. Eleven paragraphs are devoted to maps, atlases, and the use of the globe, and contain hints with regard to geographical models also. The exercises proposed are all useful, and the demand for more *learning of maps* is not a contradiction of statements expressed elsewhere. The preparation of sectional sketch-maps is rightly emphasized and should lead to better results in this direction. With regard to the atlas itself little of originality is said, photo-relief maps are mildly condemned, and there are hints that the *under-crowding* of names on the maps of some atlases is a disadvantage. Finally, the importance of constant reference to a good large globe is stressed.

There is no doubt that the suggestions will have a great influence for good in the development of the teaching of geography. The majority of the hints have successfully borne the test of experiment, and their collection in this form is of direct benefit to teachers, who also will gain indirectly by the Circular's influence on textbook writers. The subject is one which demands local differences of treatment, and the promise of a separate issue of these suggestions adapted to the special needs of Wales is a recognition of this fact.

The Nature and First Principle of Taxation. By Robert Jones, B.Sc. (P. S. King & Son.)

This treatise on the familiar subject of taxation has the interest of somewhat novel treatment and a lively style of writing. The author seeks first to explain the precise connotation of a tax, and then, by analysis and comparison of previous investigations, to arrive at the fundamental principle underlying taxation. His method is give a categorical statement of the opinions of previous writers (publicists and economists) on taxation from Hobbes to the present day, and from these to elicit, having regard to time and circumstances, the essence and grounds of taxation. His success is probably as great as the undertaking and inquiry render possible. At all events, the work supplies a very extensive survey and summary of the views of thinkers of all shades on a topic of very general concern, and thereby renders a service of value to subsequent students of taxation by supplying a good work of reference and commentary on the subject. It may be questioned whether any conclusive answer can be given to the problem raised of a single fundamental principle of taxation. Taxes have been levied in some form or other from the time when society became organized, and they will continue to be exacted in some form as long as society exists, but on different bases as public opinion and expediency may direct. In the determination of method rulers have been guided as much by possibilities and contingencies as by principles, and, when the latter have dictated methods, it has been rather on a combination of principles than on a single philosophic or scientific prime basis. In the *abstract* some correct first principles or group of principles of taxation must exist. Adam Smith's historic analysis has long been held to supply such a basis, and any attempt to formulate a deeper analysis usually starts from his system. Equity, productiveness or efficiency, economy, certainty, and convenience all exact consideration. Succeeding writers have tended rather to add to these prime desiderata than to reduce their number to unity. It is obvious that taxation must yield a revenue — that is its *raison d'être*—further, the system should be framed on lines of justice and equity, and the yield must be adequate to the demand—that is, the tax system must be effective. It is now usually granted that taxation should not encroach upon the "subsistence minimum," for a man must live before he can pay taxes. Each of these raises difficulties in interpretation. With the development of economic organization new problems have arisen—whether taxes should be direct or indirect, how far graduation can be adopted as a leading principle, whether capital or income afford the better basis for taxation, whether necessaries should be free, and, if so, how necessaries are to be determined and defined. All these and other questions are regarded as inevitable elements in the problem, and in a sense they have become fundamental in twentieth-century discussions on taxation.

It will be seen that Mr. Jones has tackled a very complex problem, and one on which agreement is probably unattainable. The value, however, of such an inquiry is largely in the presentation of the problem, the grouping of the data, and the facts involved; it diffuses knowledge of the complexity and difficulty, and offers help in the estimate of the proposals advanced by indicating the points that demand consideration. On these grounds we may regard this volume as well worthy the toil and ability which have been expended upon it. We cannot, however, admit the conclusion that economy is the fundamental fact in taxation. Economists lay great stress upon economy, efficiency, productiveness, and con-

sider a tax system wasteful which does not secure this end. Adam Smith, however, placed equality on a higher plane than economy, and, indeed, an unjust tax must be uneconomic in its operation. Mr. Jones endeavours to solve the relations by describing economy as the fundamental principle, equity as an ethical principle, convenience and certainty as political expediencies. This is ingenious, but not convincing. It begs the question. We do not by this means arrive at one fundamental principle; in fact, they are all aspects of the concrete problem; they act and react upon one another and upon the net result, and no one can be disregarded in a wise system of taxation. All existing systems of taxation can be criticized from one or several of these points of view. Various considerations help to determine the methods actually adopted; systems are a compromise and an attempt at adjustment to circumstances, established customs, prejudices, and interests, as well as to conformity with scientific principles. Economy cannot be secured by a tax system which is inequitable, for injustice in taxation effects an economic injury—that is, loss follows in some direction.

Taxation remains a complex problem. Its indirect effects are difficult to pursue; attempts at change clash always with some vested interests and run counter to established ideas and habits. Systems have grown up and their roots are deep in the past. A modification economically desirable has to deal with existing habits and prejudices, and will often temporarily inflict some injustice. It is not easy in such circumstances to adjust the canon of equity with the canon of economy or to say which is paramount. Approximation to an ideal which seeks to be just to all, and at the same time highly efficient as a revenue agent, is slow in operation. We cannot ignore existing and historic conditions. The legislator has need of a wide grasp and large consideration of both facts and principles to handle successfully the difficult problem of taxation. It is a case which involves sundry more or less conflicting principles, among which a *primus inter pares* is not easily discernible.

GENERAL NOTICES.

CLASSICS.

Pons Tironum. By R. B. Appleton and W. H. S. Jones. (1s. G. Bell.)

This little book, which is intended for the second year of Latin, consists of easy chapters on a variety of subjects, such as Poeta, Miles, Cena, Canis, Ludus. The book will be very useful to teachers using the Direct Method, and the chapters lend themselves to conversational exercises. The book is written entirely in Latin, even the vocabulary being in that language. We think the editors would have been better advised to give a Latin-English vocabulary. It is much better, we think, to leave the paraphrasing of words in Latin to the teacher in class, since he can supply immediately the meaning of any unknown word in his paraphrase. We do not envy the boy who is set to prepare a chapter of this book, and who finds, on looking up *tumor*, the following aid:—"Si caput tuum vehementer percutio tumor rotundus in capite fit." Moreover, it may be doubted whether the meaning of *miror* is conveyed by *intellegere non possum*, which stands after it in the vocabulary. Nor can we see that anything is gained by giving a picture of an apple after *malum* instead of an English word, since the curiosity of the boy who looks it up is linguistic and not botanical.

"The Clarendon Press Series of Classical Authors."—(1) *Caesar: Gallic War.* Books I–VII. By T. Rice Holmes, Hon. D.Litt. Dublin. 7 vols. (Each 2s.) (2) *The Elegiac Poems of Ovid.* By J. W. E. Pearce, M.A. 3 vols. (Each 2s.)

(1) This edition of the "Gallic War" by a Caesarian scholar of European reputation will be most welcome to teachers of Latin. It embodies the results of recent research as far as they are of service for a school edition, and references to Dr. Rice Holmes's larger works and to Continental authors will enable the teacher to follow up any point of Caesarian scholarship in which he is specially interested. Each volume contains chapters on the date and text of the commentaries, the credibility of Caesar's narrative, and the methods by which his camps and earthworks have been discovered. There is also an excellent introduction on the history and political organization of Gaul. Each volume has a map of Gaul and a geographical index giving notes on tribes and places. The text is an authoritative one, and the notes, though short in compass, are enriched by the author's exhaustive knowledge of his subject. The reader of the fourth book of Caesar, when he meets the famous "bridge" passage, will at last find notes and diagrams which render the text comprehensible. The volumes are excellently produced, and this edition should be for some time the standard school "Caesar."

(2) These three volumes of selections from Ovid include practically all the elegiac verse of that poet suitable for school reading. The first volume is drawn from the "Heroides," the "Amores," the "Ars Amatoria," and the "Remedia Amoris"; the second from the "Fasti," and the third from the "Tristia" and "Epistulae ex Ponto." In bulk the selections amount to nearly one half of the works named. The aim of the edition is mainly "to create in the beginner a taste for Latin poetry by leading him to appreciate points of style and poetical expression and by encouraging him to a comparison of passages from our own literature." To this end the volumes abound with parallels and quotations from English authors, which show a remarkably wide knowledge of our own literature. In places this is a trifle overdone, and we may doubt the wisdom of capping Spenser's

> "The immortal praise
> Of womankind, most faithful to her mate,
> Penelope,"

which is quoted on the first of the "Heroides" with

> "A wretched woman,
> Who knows she has a husband by his absence,"

from Beddoes. The grammatical notes, which are adapted to the needs of beginners, are made as brief as possible. The volumes are pleasing to the eye, and each one has a very useful map of Republican Rome. If Mr. Pearce adds a fourth volume from the "Metamorphoses," the hope that he expresses—that this edition may be regarded as a tolerably complete school "Ovid"—should be realized.

MATHEMATICS.

Outdoor and Indoor Experimental Arithmetics. Teacher's Book. By H. H. Goodacre, F.R.G.S., Head Master, and E. F. Holmes, C. F. Noble, and P. Steer, Assistant Masters, South Park School, Ilford. (3s. 6d. net. Bell.)

Outlines a well graduated five years' course of experimental work on length, area, volume, weight, and time, the arrangement conforming closely to the ideas expressed in Circular No. 807 of the Board of Education, extracts from which are cited throughout the book. A thorough training is provided in the use and practical application of all the units of measurement mentioned above, the outdoor exercises especially tending to make the work not only interesting, but of real value. Much of the apparatus required may be home made, and all is comparatively inexpensive.

Elementary Geometry, Theoretical and Practical. Vol. I: *Triangles and Quadrilaterals.* By W. E. Paterson, M.A., B.Sc., and E. O. Taylor, B.A., B.Sc. (1s. 8d. Clarendon Press.)

Covers Stage 3 of the recommendations of the Board of Education, Circular 711. Certain fundamental and more or less self-evident propositions are stated at the outset as a foundation for the deductive course. Proofs for these assumptions are given in an appendix. The use of riders is well emphasized, revision problems occur at intervals, and oral work is included. A neat little book incorporating modern methods and ideas.

Elements of Algebra. Part I. By G. St. L. Carson, M.A., M.Sc., Reader in Mathematics in the University of Liverpool, and David Eugene Smith, Ph.D., LL.D., Professor of Mathematics in Teachers College, Columbia University. (3s. Ginn.)

The subject is presented as a natural outgrowth of arithmetic, and is developed from the formula. Much the usual sequence is followed, the bookwork comprising the ordinary arithmetical operations as applied to algebra, positive and negative numbers, graphs, simple and simultaneous equations, factors, fractions, and logarithms. The choice of illustrations throughout, but especially in the graph section, has evidently been made to prevent the subject from appearing dry and uninteresting to the beginner. The elementary treatment of logarithms is a noteworthy feature, and sufficiently demonstrates the importance of their application in all forms of practical calculations. A brief but interesting sketch of the history of algebra completes this part. Plenty of exercises and revision papers are provided. Log tables are also appended. Altogether a very carefully compiled work, forming an excellent introduction to the subject.

HISTORY.

"Home University Library of Modern Knowledge."—*Prehistoric Britain.* By Robert Munro, M.A., M.D., LL.D., &c. (1s. net. Williams & Norgate.)

Dr. Munro has amply earned the right to present an authoritative summary of the ascertained facts and the safer conclusions on the racial characters and the civilization of the people in Britain in "the period during which man was an inhabitant of Western Europe prior

to the invention of written records." The reader must imagine a map very different from that of the schoolroom, and a very different descriptive geography. Dr. Munro reviews in detail the remains of the Palæolithic and the Neolithic races, and discusses the indications of culture furnished by the traces of the arts and industries of the stone, bronze, and early iron ages; and he has a good deal to say about cromlechs, dolmens, barrows, menhirs, and so forth. The book is a masterly compendium of the essential facts of the subject, as well as the history of its development.

Dramatized Stories from History. By G. Dulais Davies. (1s. net. Routledge.)

The time is past when any apology is needed for pressing the claims of the dramatic method of teaching history to young children. Mr. Edmond Holmes's "Egeria" and others have shown what can be achieved by this method, and what a lively interest the children can be led to take in the lives of the heroes of old. But surely the whole inspiration is gone if the children have to learn the play by heart, however well written and adapted to their intelligence the play may be. The story should be told to them, and hints may be given as to dress, armour, and other accessories; but much of the training is lost if the children are not encouraged to read up for themselves and evolve their own drama, as the result of their own study of the times. A book such as this one should only be used when some entertainment is being prepared, and for that purpose it can be warmly recommended. The dialogue is good and the photographs are helpful.

Numbers in History. Two Lectures delivered before the University of London by Dr. Hans Delbrück, Professor of History in the University of Berlin. (1s. 6d. net. Hodder & Stoughton, for the University of London Press.)

A most suggestive discussion of "how the Greeks defeated the Persians, the Romans conquered the world, the Teutons overthrew the Roman Empire, and William the Norman took possession of England." Dr. Delbrück makes a very drastic reduction of the traditional numbers of the combatants, and gives very solid reasons for doing so; and incidentally he shows how much more glorious is the unvarnished truth than picturesque misrepresentations of interested or unintelligent glorifiers. The brochure should be carefully studied by readers of history.

SCIENCE.

A Junior Chemistry. By W. D. Rodgers, F.I.C., B.Sc., A.R.C.Sc (3s. 6d. Murray.)

This essentially practical manual is divided into four sections, and contains, besides the experimental course, notes on the historical development of the subject, and a wealth of exercises and examination questions. Though the balance is described, and the metric system explained in an Introduction, in the first two chapters the pupils' work is qualitative only; but afterwards a quantitative course is followed. Pitfalls are appreciated and anticipated with a shrewdness born of extended experience in the teaching of young pupils. The experiments are very numerous, and instruction in general physics has been included where necessary throughout the text. The author has endeavoured always to give accurate information in the early stages of the subject. Indeed, this laudable desire has led him, in defining the gram (page 5)—which he does, by the way, without mention of the standard unit of mass—to apply the term "roughly" to an approximation of about one part in 25,000, thus tending to introduce confusion as to relative degrees of accuracy in the mind of the student. The method of relegating all equations to an appendix is of doubtful advantage, for there is then a tendency to divorce the symbolic representation from the general description and explanation of a reaction. As a laboratory classbook, and as an adjunct to systematic oral instruction, "A Junior Chemistry" should be well received by science masters in secondary schools.

A Third Year Course of Organic Chemistry. By T. P. Hilditch, D.Sc., F.I.C. (6s. Methuen.)

This book forms a sequel to Dunstan's "First Year Organic Chemistry" and Thole's "Second Year Organic Chemistry" which deal with the aliphatic and carbocyclic compounds respectively. The present volume "completes the series by a survey of the heterocyclic compounds, followed by a study of certain groups of aliphatic and carbocyclic substances which, by reason of their complexity, are omitted from detailed consideration by students in the earlier periods of their course." In the portion devoted to a consideration of the heterocyclic compounds, the various types of three, four, five, and six-membered ring compounds, including the alkaloids, are thoroughly discussed; the carbohydrates and polypeptides find suitable treatment as representative of the aliphatic series, while the last four chapters give a concise account of the chemistry of the terpenes. It is unfortunate from the point of view of the advanced student, to whom this work will chiefly appeal, that references to original papers have been omitted. The type chosen for diagrammatic representation of structural formulae lacks clearness; this disadvantage rather outweighs advantages accruing from the exercise of economy of space. Nevertheless, there is here to be found a vast quantity of information in a book of low price and convenient size.

Preliminary Practical Science. By H. Stanley, B.Sc., F.I.C., Lecturer in the Merchant Venturers' Technical College, Bristol. (1s. 6d. Methuen.)

States briefly certain elementary but fundamental principles, outlines simple illustrative experiments, and gives typical practical applications. A book for beginners in technical schools.

ART.

Ancient and Medieval Art. By Margaret H. Bulley. (5s. net. Methuen.)

This book is the outcome of a series of picture talks given in an elementary school, and is intended as a guide to parents and teachers who wish to lead their children to an appreciation of works of art. Every large town has its museum or art gallery and some building of particular architectural interest, and yet how few of the inhabitants really appreciate the beauty that is in their midst. A beginning has been made in London, where official guides have been appointed in some of the galleries, who personally conduct visitors at stated times and explain the treasures; but even then some previous knowledge is desirable, especially in the case of children. The course suggested by Miss Bulley would be just the sort of preparation that is needed. The value of the book is much enhanced by photographs of works of art not easily accessible to the average reader, and which recall delightful days to those who have been so fortunate as to travel far enough afield to have seen the originals for themselves.

PATON'S LIST OF SCHOOLS.

List of Schools and Tutors. An aid to Parents in the Selection of Schools. 1914–15. Seventeenth Annual Edition. (2s. J. & J. Paton.)

One unfortunate result of the war is that many parents are compelled to seek for their children a school at lower fees than those they had been previously paying. Many parents will be seeking further information about schools. Nowhere will they find a more complete list or fuller details than in the careful and well arranged publication of Messrs. Paton, that is already so widely known. An alphabetical index enables one to find at a glance the fees of each school and a reference to the page containing other details. A map enables one to find the geographical position of the school. Lists of scholarships and exhibitions are given, and information regarding preparation for various careers for boys and girls. Messrs. Paton offer to send a copy of the prospectus of any school and to give advice on the matter of choice. They ask us to state that since the volume was in the press, many Heads of schools have written to say that they are willing to reduce their fees for children of officers or of those whose incomes have been diminished by the war.

PUBLICATIONS RECEIVED.

EDUCATION.

Imperial Education Conference Papers. Conditions of Recognition, Classification, and Payment of Teachers in the Self-governing Dominions. (1) No. 8, Canada, Saskatchewan. 4d. (2) No. 11, New South Wales. 8d. (3) No. 17, New Zealand. 6d. (4) Cape of Good Hope. Ed. (5) No. 19, Natal. 6d. Eyre & Spottiswoode.

CLASSICS.

De Ducibus. Selections from Cornelius Nepos. Edited by W. G. Butler. Bell, 1s. 6d.

School Latin Classics.—(1) Aeneid. Book IX. Edited by J. F. Richards. 1s. 6d. (2) Gallic War. Book II. Edited by Ll. M. Penn. 1s. (3) Gallic War. Book III. Edited by Ll. M. Penn. 1s. Clive.

FRENCH.

Grammaire Française Moderne. Par M. Deshumbert et Marc Ceppi. Bell, 2s. 6d. net. [Also the same in English, 2s. 6d.]

Direct Method Texts. — Bug Jargal. By Victor Hugo. With Notes and Exercises by R. R. N. Baron. Mills & Boon, 2s.

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MATHEMATICS.

Readers desiring to contribute to the Mathematical columns are asked to observe the following directions very carefully:—

(1) *To write on one side only of the paper.*
(2) *To avoid putting more than one piece of work on a single sheet of paper.*
(3) *To sign each separate piece of work.*

17814. (Professor SANJÁNA, M.A.)—Factorize completely—

$$45^{15}-1;\ 20^{25}-1;\ 6^{30}+1;\ 8^{30}+1;\ 10^{30}+1.$$

Solution by Lt.-Col. ALLAN CUNNINGHAM, R.E.

The five numbers proposed (say z_1, z_2, z_3, z_4, z_5) may be written $z = (5.3^2)^{3.5}-1,\ (5.2^2)^{5.5}-1,\ (6.1^2)^{5.6}+1,\ (2.2^2)^{15.2}+1,\ (10.10^2)^{10}+1$, which form shows that they all have algebraic factors, and that in each case one or more of the algebraic factors is an Aurifeuillian of the order 5, 5, 6, 2, 10 respectively.

Also, since $z_3 = 36^{15}+1$, $z_4 = 64^{15}+1$, $z_5 = 100^{15}+1$, the four numbers z_1, z_3, z_4, z_5 are of form $z = (y^{15}\mp 1)$, and are each algebraically resolvable into four factors, say $z = N_1.N_3.N_5.N_{15}$, where

$$N_1 = (y\mp 1),\quad N_3 = (y^3\mp 1)\div(y\mp 1),\quad N_5 = (y^5\mp 1)\div(y\mp 1)$$
$$N_{15} = (y^{15}\mp 1)(y\mp 1)\div(y^5\mp 1)(y^3\mp 1),$$

with the same sign throughout in any one case.

The Aurifeuillian resolutions of the above orders have been given several times in considerable detail in this journal. The details differ a good deal for different orders of Aurifeuillians, and would occupy much space if given in full for each. It is given below pretty fully only for order 5 in Ex. 1°.

$$N_5 = (y^5-1)\div(y-1) = L.M,\ \text{where } y = 5\eta^2,$$
$$L = P-Q,\quad M = P+Q,\quad P = (y^2+3y+1),\quad Q = 5\eta(y+1);$$

And, writing $Y = y^3$ and

$$\mathbf{N}_5 = (Y^5-1)\div(Y-1) = \mathbf{L.M},\ \text{where } Y = 5(5\eta^3)^2 = 5H^2,$$

so that

$$\mathbf{L} = \mathbf{P}-\mathbf{Q},\quad \mathbf{M} = \mathbf{P}+\mathbf{Q},\quad \mathbf{P} = (Y^2+3Y+1),\quad \mathbf{Q} = 5H(Y+1).$$

Then $\qquad N_{15} = \mathbf{N}_{15}\div N_5 = \mathbf{L.M}\div L.M,$

and (by the Aurifeuillian property) L divides into **L** or **M**, and M divides into **M** or **L**. These formulae suffice for the complete resolution of z.

Ex. 1°.— $z_1 = 45^{15}-1;\quad y = 45 = 5.3^2,\quad \eta = 3;$
$$Y = 45^3 = 91125,\quad H = 5\eta^3 = 135.$$
$$N_1 = 4.11;\quad N_3 = 2071 = 19.109;$$
$$P = 2161,\quad Q = 690;\quad N_5 = L.M = 1471.2851;$$
$$\mathbf{P} = 8304039001,\quad Q = 61510050;$$
$$\mathbf{L} = 8242528951,\quad \mathbf{M} = 8365549051,\quad \mathbf{N} = \mathbf{L.M};$$
$$N_{15} = \mathbf{N}_5\div N_5 = \mathbf{L.M}\div L.M = \{\mathbf{L}\div M\}.\{\mathbf{M}\div L\}$$
$$= 2891101.5686981$$
$$= 2891101.31.183451,$$

and $z_1 = N_1N_3N_5.N_{15}$.

Ex. 2°.— $z_2 = 20^{25}-1;\quad y = 20 = 5.2^2,\quad \eta = 2;$
$$Y = y^5 = 5.800^2,\quad H = 800.$$
$$z_2 = N_1.N_5.N_{25},\ \text{where}\ N_1 = (y-1),\quad N_5 = (y^5-1)\div(y-1)$$
$$N_{25} = (y^{25}-1)\div(y^5-1) = (Y^5-1)\div(Y-1).$$

Here $N_5.N_{25}$ are both Quint-Aurifeuillians. As in Ex. 1°,
$$N_1 = 19;\quad N_5 = L.M = 251.(11.61);\quad N_{25} = \mathbf{L.M};$$
$$L = 10227209596001,\quad M = 10252809604001.$$

The author has a Table of Solutions (y) of

$$(y^{25}-1)\div(y-1) = 0 \pmod p$$

[compiled for him by Mr. T. G. Creak, of Llanberis] up to $p \not> 10^4$, which shows that N_{25} has the divisors $p = 151$ and 1451, and no more $<10^4$. On actual trial, M is hereby resolved completely (into prime factors) $M = 151.1451.46794901$, and L is left unresolved.

The complete factorizations of z_3, z_4, z_5 have been all published already, so that detail is not given now.

Ex. 3°.— $z_3 = 6^{30}+1 = 36^{15}+1 = N_1.N_3.N_5.N_{15};$
$$N_1 = 37;\quad N_3 = 13.97;\quad N_5 = 241.6781;$$
$$N_{15} = (181.3541).(61.74161).$$

Here, writing $Y = y^5$, $\mathbf{N}_3 = (Y^3+1)\div(Y+1)$,
gives $N_{15} = \mathbf{N}_3 \div N_3$.
N_3 and $\mathbf{N}_3$ are Sext-Aurifeuillians, and $\mathbf{N}_3$ contains N_3.

The Sext-Aurifeuillian resolution is given by

$$N = LM = (z^6+1)\div(z^2+1)\,;\quad L = P-Q,\quad M = P+Q\,;$$
$$P = (z^2+3z+1),\quad Q = 6\zeta(z+1),\quad \text{where}\quad z = 6\zeta^2.$$

Ex. 4°.— $z_4 = 8^{30}+1 = 64^{15}+1 = N_1.N_3.N_5.N_{15}$;

$$N_1 = 5.13\,;\quad N_3 = 37.109\,;\quad N_5 = 5.41.61.1321\,;$$
$$N_{15} = (181.54001).(29.247661).$$

Here the numerators and denominators of $N_1N_3N_5N_{15}$ are all Bin-Aurifeuillians, say $N = 4z^4+1$, the resolution of which is

$$N = LM = (2z^2-2z+1)(2z^2+2z+1).$$

Ex. 5°.— $z_5 = 10^{30}+1 = 100^{15}+1 = N_1.N_3.N_5.N_{15}$.

$$N_1 = 101\,;\quad N_3 = 9901\,;\quad N_5 = 3541.27961\,;$$
$$N_{15} = (61.4188901)(39526741).$$

Here, writing $Y = y^3 = 100^3$, $\mathbf{N}_5 = (Y^{15}+1)\div(Y^3+1)$,
gives $N_{15} = \mathbf{N}_5 \div N_5$;
N_5 and $\mathbf{N}_5$ are Dec-Aurifeuillians. This resolution is given by

$$N = (z^{10}+1)\div(z^2+1) = L.M,$$
where $z = 10\zeta^2$; $L = P-Q$, $M = P+Q$;
$$P = (z^4+5z^3+7z^2+5z+1),\quad Q = 10\zeta(z^3+2z^2+2z+1).$$

17792. (R. Vythynathaswamy.)—A family of limaçons,

$$a_r + 2b_r\cos(\theta-\alpha_r) = \rho,$$

is drawn touching two fixed circles through the pole, and points are taken on their axes distant a_r^2/b_r from the pole. Show that these points lie on one or other of two circles.

Solution by W. N. Bailey.

As in my solution to Question 17643 (March, 1914), it can be proved that the locus of centres of circles passing through the pole and touching a limaçon is a circle C, and the limaçon is traced by a point carried by an equal circle rolling on this circle C.

In this question C passes through the centres Q, R of the two fixed circles, and therefore its centre A lies on a fixed straight line which does not pass through the pole O unless the given fixed circles are equal.

Also $OA = b_r$ and $AQ = AR = \frac{1}{2}a_r$.

Let A lie on the line $y = c$, and let P be a point (x, y) on OA, such that $OP = 4AR^2/OA$.

We easily find that P lies on a circular cubic, or on its image in O, and not on either of two circles as stated.

Consider now a family of ellipses, foci S and S′, which touch two fixed lines, S being fixed. The locus of S′ is evidently a straight line through the point of intersection of the given lines. Invert this, and the theorem stated is correct if the points on the axis of the limaçons are distant $a_r^2/b_r - 4b_r$ from the pole unless the given circles are equal. This may be the theorem meant. When the circles are equal the locus is two straight lines.

17730. (Lt.-Col. Allan Cunningham, R.E.)—If

$$N_1 = r^{r+1}-2r^r+1,\quad N_2 = 2r^{r-2}-r^{r-3}-1,\quad N_3 = r^{r+1}-2r+1,$$
$$N_4 = r^{r-2}+r-2,$$

prove that N_1, N_2, N_3, N_4 are all divisible by $(r-1)^2$, and that N_1 and N_3 are divisible by $(r-1)^3$ when r is even. *Ex.*—Taking $= 10$, factorize N_1, N_2, N_3, N_4 into prime factors.

Solution by W. N. Bailey.

Let $r-1 = p$.

Then $N_1 = (1+p)^{p+2} - 2(1+p)^{p+1}+1$
$\equiv 1+(p+2)p+\frac{1}{2}[(p+2)(p+1)]p^2-2-2(p+1)p+1$
$\equiv p^3\frac{1}{2}(p+3) \pmod{p^3}$. $\pmod{p^3}$

Hence N_1 is always divisible by p^2, and is divisible by p^3 when $p+3$ is even, *i.e.*, when r is even.

$N_2 = 2(1+p)^{p-1}-(1+p)^{p-2}-1$
$\equiv 2+2(p-1)p+(p-1)(p-2)p^2-1$
$-(p-2)p-\frac{1}{2}[(p-2)(p-3)]p^2-1 \pmod{p^3}$
$\equiv p^3\frac{1}{2}(p-1) \pmod{p^3}$
$\equiv 0 \pmod{p^2}$ always,
and $N_2 \equiv 0 \pmod{p^3}$ when r is even.

$N_3 = (1+p)^{p+2}-2(1+p)+1$
$\equiv 1+(p+2)p-2-2p+1 \pmod{p^2}$
$\equiv 0 \pmod{p^2}$.

$N_4 = (1+p)^{p-1}+(1+p)-2 \equiv 1+(p-1)p+1+p-2 \pmod{p^2}$
$\equiv 0 \pmod{p^2}$.

Hence N_1, N_2, N_3, N_4 are all divisible by $(r-1)^2$, and N_1 and N_3 are divisible by $(r-1)^3$ when r is even.

When $r = 10$,

$$N_1 = 3^6\times 109739369,\qquad N_2 = 3^9\times 7^2\times 197,$$
$$N_3 = 3^4\times 7\times 176366843,\qquad N_4 = 2^3\times 3^4\times 154171.$$

17785. (W. F. Beard, M.A.)—ABC is a triangle. A parabola touches BC, CA, AB at x, y, z respectively. Prove that the tangents parallel to By, Cz intersect on the median through A.

Solution by Lt.-Col. H. W. L. Hime, R.A.

The anharmonic equation of this parabola is

$$x^2+y^2+z^2-2yz-2zx-2xy = 0,$$
with the condition $mn+nl+lm = 0$.

The equations of By and Cz are $x-z = 0$ and $x-y = 0$, and the tangents parallel to them are (n, m, l) and (m, l, n). These tangents intersect in the point

$$\{mn-l^2,\quad lm-n^2,\quad nl-m^2\},$$

and these co-ordinates satisfy the equation of the median from A $my-nz = 0$, for

$$m(lm-n^2)-n(nl-m^2) = l(m^2-n^2)+mn(m-n)$$
$$= (mn+nl+lm)(m-n).$$

17793. (S. Krishnaswami Aiyangar, B.A.)—A parabola has its axis perpendicular to the axis of x, and has contact of the highest order possible with the curve $a^{n-1}y = x^n$. Find the locus of its focus.

Solution by C. W. Adams, M.A.

If a in the question does *not* denote the parameter of the parabola, let the equation of the latter be

$$(x-X)^2 = 4b(y-Y+b),$$
so that (X, Y) is its focus.

Then the abscissae of the intersections are given by

$$4bx^n-a^{n-1}x^2+2a^{n-1}Xx-a^{n-1}(X^2+4bY-4b^2) = 0.$$

Differentiating twice with regard to x, we get

$$2nbx^{n-1}-a^{n-1}x+a^{n-1}X = 0,\quad 2n(n-1)bx^{n-2}-a^{n-1} = 0.$$

We can now eliminate b and x from these three equations, and get as the locus of the focus

$$n(n-1)^{2n-2}x^{2n-2}-2n(n-1)^{n-1}(n-2)^{n-1}a^{n-1}x^{n-2}y$$
$$+(n-2)^{2n-3}a^{2n-2} = 0.$$

If a *does* denote the parameter of the parabola, the equation for the abscissae simplifies to

$$4x^n-a^{n-2}x^2+2a^{n-2}Xx-a^{n-2}(X^2+4aY-4a^2) = 0.$$

Differentiating once, $2nx^{n-1}-a^{n-2}x+a^{n-2}X = 0$.

The locus obtained by eliminating x from these two can only be expressed explicitly in surd form.

On the first supposition, three-point contact is the highest possible, on the second two-point.

17815. (N. Sankara Aiyar, M.A.)—Construct, geometrically, a triangle, given the in-radius, circum-radius, and the difference between two angles.

Solution by J. M. Child, M.A., *and* H. Dowse, L.C.P.

Given R, r, and C−B.

If S, I are the circum-centre and the in-centre,

$$SA = R,\quad SI^2 = R(R-2r),\quad \text{and}\quad \angle SAI = \tfrac{1}{2}(C-B)\,;$$
therefore triangle SAI can be constructed geometrically.

(Ambiguous case: in general two solutions.)

Let AI produced cut the circum-circle in X, then the circle with X as centre and XI as radius cuts the circum-circle in B and C.

17823. (Professor R. Srinivasan, M.A.)—Show that

$$\int_0^1 (\log x)^r x^{m-n}\,dx = \sum_{t=1}^{\infty}(-1)^r n^{t-1}\Gamma(t+r)/\{(m+t)^{t+r}\Gamma(t)\}.$$

Solutions (1) *by* C. M. Ross, M.A.; (II) *by* W. N. Bailey.

(I) Put $c^{-y} = x$ in the integral. Then

$$\int_0^1 (\log x)^r . x^{m-n} dx$$

$$= (-1)^r \int_0^\infty y^r e^{-y(m-n+1)} dy$$

$$= (-1)^r \int_0^\infty y^r c^{-y(m+1)} \left[1 + \frac{ny}{1!} + \frac{n^2y^2}{2!} + \frac{n^3y^3}{3!} + \dots\right] dy$$

$$= (-1)^r \left[\int_0^\infty y^r e^{-y(m+1)} dy + \frac{n}{1!}\int_0^\infty y^{r+1} e^{-y(m+1)} dy + \frac{n^2}{2!}\int_0^\infty y^{r+2} c^{-y(m+1)} dy + \dots\right]$$

$$= (-1)^r \left[\frac{\Gamma(r+1)}{(m+1)^{r+1}} + \frac{n}{1!}\frac{\Gamma(r+2)}{(m+1)^{r+2}} + \frac{n^2}{2!}\frac{\Gamma(r+3)}{(m+1)^{r+3}} + \dots\right]$$

$$= (-1)^r \left[\frac{\Gamma(r+1)}{\Gamma(m+1)^{r+1}} + \frac{n\Gamma(r+2)}{(m+1)^{r+2}\Gamma(2)} + \frac{n^2}{\Gamma(3)}\frac{\Gamma(r+3)}{(m+1)^{r+3}} + \dots\right]^*$$

$$= (-1)^r \sum_{t=1}^{\infty} \frac{n^{t-1}\Gamma(r+t)}{(m+1)^{t+r}\Gamma(t)}.$$

* Since $\Gamma(2) = 1\Gamma(1) = 1!$, $\Gamma(3) = 2\Gamma(2) = 2!$, ...

(II) In order that the integral and series should be convergent, we must have $m+1 > |n|$.

Let $$I_r = \int_0^1 (\log x)^r x^{m-n} dx.$$

Then $$\frac{dI_r}{dn} = -\int_0^1 (\log x)^{r+1} x^{m-n} dx = -I_{r+1},$$

the last step being easily justified.

Hence $$I_r = -\frac{dI_{r-1}}{dn} = \dots = (-1)^r \frac{d^rI_0}{dn^r}$$

$$= (-1)^r \frac{d^r}{dn^r}\int_0^1 x^{m-n} dx$$

$$= (-1)^r \frac{d^r}{dn^r}\left(\frac{1}{m-n+1}\right)$$

$$= \frac{(-1)^r}{m+1}\frac{d^r}{dn^r}\left[1 + \frac{n}{m+1} + \frac{n^2}{(m+1)^2} + \dots\right]$$

$$= \sum_{t=1}^{\infty} (-1)^r n^{t-1}\Gamma(t+r)/\{(m+1)^{t+r}\Gamma(t)\},$$

since the power series can be differentiated term by term if $|n| < m+1$.

17812. (Professor Cochez.) — D'un point M on mène trois normales MA, MB, BC à une parabole donnée. Trouver le lieu des points pour lesquels $AB^{-2} + BC^{-2} + CA^{-2} = \kappa^2$.

Solution by C. M. Ross, M.A.

Let the points A, B, C be $(at_r^2, 2at_r)$, $(r = 1, 2, 3)$.

The condition that the normal

$$2a(y-y') + y'(x-x') = 0$$

at the point (x', y') should pass through M (h, K) is

$$8a^2(K-y') + y'(4ah - y'^2) = 0, \quad \text{since } y'^2 = 4ax'.$$

The roots of this equation are $2at_r$, $(r = 1, 2, 3)$, therefore

$$t_1 + t_2 + t_3 = 0, \quad t_1t_2 + t_2t_3 + t_3t_1 = (2a-h)/a, \quad t_1t_2t_3 = K/a \dots (1, 2, 3).$$

Again, $$AB^2 = a^2\{(t_1^2 - t_2^2)^2 + 4(t_1 - t_2)^2\}$$
$$= a^2(t_1 - t_2)^2[(t_1 + t_2)^2 + 4].$$

Hence the condition under which the points M move becomes

$$\Sigma \frac{1}{(t_1 - t_2)^2(t_3^2 + 4)} = a^2\kappa^2 \dots\dots\dots\dots (4).$$

(4) may be reduced to the following

$$\frac{t_3}{(h-14a)K + (h^2-4a^2)t_3 - 3akt_3^2} + \frac{t_3^2[t_3^2(2a-h)(6a-h) + 2kt_3(4a+h) + 3K^2]}{[3K - 2(2a-h)t_3]^2[K^2 + 4aKt_3 + 4at_3^2(2a+h)]} = K^2,$$

which again is capable of being written as a cubic.

We could then eliminate t_3 from this final equation and the equation $$at_3^3 + (2a-h)t_3 = K,$$

the resultant being of the 6th degree. The locus of the points M thus appears to be a sextic curve. The task of working out the locus is one of great labour, and when done, little knowledge of it is gained, its equation being so unwieldy.

17818. (A. M. Nesbitt, M.A.)—Prove that, for any value of λ, the ellipses $$x^2/(a+b\lambda) + y^2/(b+b\lambda) = 1$$
and $$(x-l)^2/(\alpha\lambda+\beta) + y^2/(\alpha\lambda+\alpha) = 1$$
will have double contact if $l^2\alpha\beta = (a\alpha - b\beta)(b-\alpha)$,
and contact of the third order if, in addition,
$$\lambda = (a-\beta)/(b-\alpha) - a/b - \alpha/\beta.$$

Solution by C. W. Adams, M.A.

Writing A, B, A′, B′ for the squares of the semiaxes, the abscissae of the intersections are given by

$$(AB' - A'B)x^2 - 2AB'lx + AB'l^2 + AA'(B-B') = 0.$$

The condition that this shall have equal roots is

$$BB'l^2 = (B-B')(AB'-A'B) \dots\dots\dots\dots (1),$$

which reduces to $l^2ab = (a\alpha - b\beta)(b-\alpha)$.

Each root is then equal to $AB'l/(AB'-A'B)$.

For contact of the third order, this expression must be equal in magnitude to the semi-major axis of the first ellipse.

Hence $$AB'^2l^2 = (AB'-A'B)^2 \dots\dots\dots\dots (2).$$

Eliminating l from (1) and (2), $B/AB' = B'/A'B$,

which reduces to $\lambda = (a-\beta)/(b-\alpha) - a/b - \beta/\alpha$.

There is thus a misprint in each of the conditions in the question.

17806. (*Communicated by* C. M. Ross, M.A.)—Prove that, when the two quadraties $a/(x-\alpha) + b/(x-\beta) + c/(x-\gamma) = 0$,
$$a'/(x-\alpha) + b'/(x-\beta) + c'/(x-\gamma) = 0,$$
have a common root, the equation
$$(\beta-\gamma)/[(bc'-b'c)(x-\alpha)] + (\gamma-\alpha)/[(ca'-c'a)(x-\beta)] + (\alpha-\beta)/[(ab'-a'b)(x-\gamma)],$$
is a simple equation giving the common root. (Math. Trip., 1909.)

Solution by W. N. Bailey.

From the given equations we have

$$\frac{x-\alpha}{1/(bc'-b'c)} = \frac{x-\beta}{1/(ca'-c'a)} = \frac{x-\gamma}{1/(ab'-a'b)} \dots\dots\dots\dots (1).$$

For these to be consistent, we must have

$$(\beta-\gamma)/(bc'-b'c) + (\gamma-\alpha)/(ca'-c'a) + (\alpha-\beta)/(ab'-a'b) = 0 \dots (2).$$

The equation $(\beta-\gamma)/[(bc'-b'c)(x-\alpha)] + \dots + \dots = 0$ is evidently satisfied because of (1) and $\Sigma(\beta-\gamma) = 0$. Also, it is a simple equation because of (2).

17827. (W. N. Bailey.)—Through the vertices of a triangle ABC, lines are drawn intersecting in a point O, and cutting the opposite sides BC, CA, AB at D, E, F. Prove, without the use of any properties of conics, that the lines joining A, B, C to the mid-points of EF, FD, DE are concurrent.

Solution by J. M. Child, M.A.

This question, which has been set more than once in University Scholarship Examinations, is only a particular case of a more general theorem.

"D, E, F are points on the sides BC, CA, AB of a triangle ABC, such that AD, BE, CF meet in a point; P, Q, R are points on EF, FD, DE, such that DP, EQ, CR either meet in a point or lie on a straight line. Then AP, BQ, CR are concurrent or meet BC, CA, AB in collinear points."

Let AP, BQ, CR produced cut BC in X, Y, Z; let LMN be the axis of perspective of the triangles ABC, DEF.

Then $LF.PE/FP.EL = LB.XC/BX.CL$; (Cross ratio)

therefore $BX/XC = BL/LC.EL/LF.FP/PE$.

Hence $BX/XC.CY/YA.AZ/ZB$
$= (BL/LC.CM/MA.AN/NB).(EL/LF.FM/MD.DN/NE).(FP/PE.EQ/QD.DR/RE)$,

and $BL/LC.CM/MA.AN/NB = -1$
$= EL/LF.FM/MD.DN/NE$; (Menelaus)

therefore $BX/XC.CY/YA.AZ/ZB = FP/PE.EQ/QD.DR/RE$.

Hence, if DP, EQ, FR are concurrent, so are AX, BY, CZ; and, if P, Q, R are collinear, so are X, Y, Z.

QUESTIONS FOR SOLUTION.

17833. T. Muir, LL.D.)—Prove that

$$\begin{vmatrix} a & x_1x_2 & x_1x_3 & x_2x_3 \\ x_1x_2 & b & x_1x_4 & x_2x_4 \\ x_1x_3 & x_1x_4 & c & x_3x_4 \\ x_2x_3 & x_2x_4 & x_3x_4 & d \end{vmatrix} = (a-\delta_4)(b-\delta_3)(c-\delta_2)(d-\delta_1) \times \{1+\delta_4/(a-\delta_4)+\delta_3/(b-\delta_3)+\ldots\},$$

where $\delta_4 = x_1x_2x_3/x_4$, $\delta_3 = x_1x_2x_4/x_3$, ...

17834. (Norman Alliston.)—Primes of the form $5x^2+y^2$ are of the form $(5x)^2+y^2$, and conversely; they are further of both the forms $5x^2-y^2$ and x^2-5y^2 in an infinite number of ways; and finally are of one of the forms $(5x)^2-y^2$ or $x^2-(5y)^2$.

17835. (A. A. Krishnaswami Aiyangar, B.A.)—Two given circles intersect at A and B. PAQ is any secant through A. Find the locus of the intersection of tangents at P and Q.

17836. (Professor R. Srinivasan, M.A.)—Show that

(i) $x\log(x^2+y^2)/2(x^2+y^2)+y\tan^{-1}(y/x)/(x^2+y^2)$
$$= \sum_0^\infty (-1)^n C_n (x^2+y^2)^{\frac{1}{2}n}\cos(n\tan^{-1}y/x;$$

(ii) $x\tan^{-1}(y/x)/(x^2+y^2)-y\log(x^2+y^2)/2(x^2+y^2)$
$$= \sum_0^\infty (-1)^n C_n (x^2+y^2)^{\frac{1}{2}n}\sin(n\tan^{-1}y/x),$$

where $C_n \equiv 1+\frac{1}{2}+\frac{1}{3}+\ldots+1/n$.

17837. (J. Hammond, M.A.)—Referring to Question 17799, let $\Psi(n, x, y)$ denote the sum of terms of the form $P(2n-p)$, where p is an odd prime, and ranges from the next prime above x to y, or the next prime below it, according as y is or is not a prime. With this notation the formula in 17799 may be written

$$\Psi(n, 0, n) = \{P(n)\}^2+\Psi(n, n, 2n).$$

Prove that, when $a+b = 2n$,

$$\Psi(n, 0, a) = P(a)P(b)+\Psi(n, b, 2n).$$

[We rejoice to learn from our old and valued contributor that the report of his death is greatly exaggerated.]

17838. (Professor E. J. Nanson, M.A.)—If two conics S, S′ are such that a polygon of $2(n-1)$ sides can be inscribed in S′ and circumscribed about S′, then the locus of the nth vertex of a polygon of n sides circumscribed about S and having $n-1$ vertices on S′ is a straight line.

17839. (Lt.-Col. Allan Cunningham, R.E.)—Using $\tau(N)$ to denote the totient of N, then—

(i) Find the form of M that the equation $\tau(N) = M$ may admit of solutions (N).

(ii) Find all the solutions (N) of $\tau(N) = 2^{16}$.

(iii) Find the number (n) of solutions (N) of $\tau(N) = 2^r$ [r being a given number].

17840. (R. F. Davis, M.A.)—ABC is a triangle having O, H for its circum- and ortho-centres; E, F the extremities of the circum-diameter OH; U the Euler-point on the circum-circle, whose Simson-line is parallel to OH. Prove that the rectangular hyperbola, having its centre at U, asymptotes UE, UF, and touching EOHF at O, will pass through the in- and ex-centres of ABC. Also that any two points which are isogonal conjugates with respect to the triangle ABC will be conjugate points with respect to this rectangular hyperbola.

17841. (F. G. W. Brown, B.Sc.)—If the lengths of the three medians of a triangle ABC are in geometrical progression, show that

$$2\cos B = 2h\pm[\sqrt{[3(h^2-1)]}], \text{ where } hac = a^2+c^2.$$

17842. ("Solidus.")—If $\alpha, b, c \ldots \alpha, \beta, \gamma \ldots$ denote positive integers such that $a\alpha+b\beta+c\gamma+\ldots+m\mu = n$, where n is any chosen integer, prove that

$$\Sigma\frac{1}{\alpha!\,a^\alpha.\beta!\,b^\beta\ldots\mu!\,m^\mu} = 1,$$

the summation extending over all sets of values of $a, b \ldots \alpha, \beta \ldots$ which satisfy the conditional equation. If, in addition, we introduce the further conditions $a \not< 2$, $b \not< 2 \ldots m \not< 2$, show that the value of the sum is $1-1/1!+1/2!-1/3!\ldots+(-1)^n/n!$.

17843. (E. G. Hogg, M.A.)—If P be the fourth point of intersection of the circumcircle and Steiner ellipse of the triangle ABC, then $\Sigma AP^2/(b^2-c^2) = 0$.

17844. (W. N. Bailey.)—Conics are drawn through four fixed points A, B, C, D, and meet a fixed line at P and Q. Show that the fourth point of intersection of the conics which pass through A, B, C and touch the given line at P, Q lies on a conic γ through A, B, C, and that, if PQ is any straight line through a fixed point, the conics γ pass through four fixed points.

17845. (A. M. Nesbitt, M.A.)—KA, KX are tangents to a circle ABX, and a second circle CABK touches KX. The straight line CBD touches the former circle at B, and cuts KX in D. Prove (i) that AB is parallel to CK, (ii) that CB = 3BD, (iii) that C is on the second common tangent to the two circles.

17846. (Professor J. C. Swaminarayan, M.A.)—Prove that in any triangle ABC

$$a\cos\tfrac{1}{3}(B-C)+b\cos\tfrac{1}{3}(C-A+4\pi)+c\cos\tfrac{1}{3}(A-B+2\pi) = 0$$

and $$a\sin\tfrac{1}{3}(B-C)+b\sin\tfrac{1}{3}(C-A+4\pi)+c\sin\tfrac{1}{3}(A-B+2\pi) = 0.$$

Hence deduce that

$$a^3\cos(B-C)+b^3\cos(C-A)+c^3\cos(A-B) = 3abc$$

and $$a^3\sin(B-C)+b^3\sin(C-A)+c^3\sin(A-B) = 0.$$

17847. (W. F. Beard, M.A.)—Parabolas are escribed to a given triangle. Prove that (i) the polar of the centroid of the triangle touches the minimum circumscribed ellipse, (ii) the polar of the centroid of the points of contact touches the maximum inscribed ellipse. Show that similar theorems hold in the case of circumscribed parabolas.

17848. (R. Vythynathaswamy.)—The $(s\psi)$ equation of any curve being given, show that the $(s\psi)$ equation of the locus of centroids of arcs of constant length λ is got by eliminating s between

$$\tan\Psi = L/M \quad\text{and}\quad S = \frac{1}{\lambda}\int\sqrt{(L^2+M^2)}\,ds,$$

where $$L = \int_s^{s+\lambda}\sin\psi\,ds, \quad M = \int_s^{s+\lambda}\cos\psi\,ds.$$

17849. (Professor Neuberg.)—Un point M est rapporté à trois axes rectangulaires Ox, Oy, Oz. Soit P la projection de M sur le plan xy. Sur la droite PM on détermine un point M′ tel que l'angle MOM′ soit droit. Trouver le lieu du point M′, lorsque M parcourt un plan ou une droite.

17850. (V. V. S. Narayan.)—ABC is a triangle of constant perimeter. The vertex A is fixed, and BC is of constant length. Find the locus of C when B describes (i) a straight line, (ii) a conic.

17851. (E. R. Hamilton.)—S, S′ are two ellipses disposed in any manner in a plane, centres O, O′. If the direction conjugate to OM with regard to S is the same as the direction conjugate to O′M with regard to S′, show that the locus of M is a conic. The line m has the direction conjugate to both OM and O′M, and passes through M. Find the envelope of m.

17852. (Professor Sanjána.)—When q and n are integers and $q > n$, prove that

(i) $1.3.5\ldots(2q-1)-{}^nC_2.1.1.3.5\ldots(2q-3)$
$$+{}^nC_4.1.3.1.3.5\ldots(2q-5)-\ldots = (2q-n)!\div\{2^{q-n}(q-n)!\};$$

(ii) ${}^{2n+1}C_1.1.3.5\ldots(2n-1)-{}^{2n+1}C_3.1.3.5\ldots(2n-3)(2q+2)$
$$+{}^{2n+1}C_5.1.3.5\ldots(2n-5)(2q+2)(2q+4)-\ldots$$
$$= (-)^n(2q-1)(2q-3)\ldots(2q-2n+1);$$

(iii) ${}^{2n+1}C_1.1.3.5\ldots(2n-1)-{}^{2n+1}C_3.1.3.5\ldots(2n-3)(2q+3)$
$$+{}^{2n+1}C_5.1.3.5\ldots(2n-5)(2q+3)(2q+5)-\ldots$$
$$= (-)^n 2q(2q-2)(2q-4)\ldots(2q-2n+2).$$

17853. (N. Sankara Aiyar.)—Find the locus of points at which two sides of a given triangle subtend equal angles or supplementary ones. Hence find the coordinates of Fermat's point (the point at which the sides subtend the same angle).

17854. (N. W. McLachlan, B.Sc.)—n equidistant points are taken on the circumference of a circle of radius r ($n \not< 3$). With these points as centres and half the distance between two points as radii n arcs are drawn, terminating on the circumference of the circle. Find the area inside the figure thus formed, and deduce its value when n is infinite.

17855. (*Communicated by* "Ignotus.")—If $m_1, m_2 \ldots m_s$ are the integers less than and prime to m, and if $p_1, p_2 \ldots$ are the *different* prime factors of m, then shall

$$\prod_1^s \sin\{\theta+(m_r\pi/m)\} = [\sin m\theta.\Pi\sin(m\theta/p_1p_2).\Pi\sin(m\theta/p_1p_2p_3p_4)\ldots]$$
$$\div[2^s\Pi\sin(m\theta/p_1).\Pi\sin(m\theta/p_1p_2p_3\ldots].$$

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CONTENTS.

Page
Leader: A Self-governing Profession 485
Notes 486
The Demand for Women Teachers—Free Education for Children in Distress—Young Highwaymen—Mme Montessori's Visit—Shall German be Taught?—Imperial Studies—A Plea for Recreation—The Value of Nature Study—Private Schools—State Control—Teachers and the Universities—Head Mistresses and the Examination Circular.
Summary of the Month 488
Careers for Girls: VII, Horticulture. By M. C. Rayner ... 489
Current Events 491
The College of Preceptors:
Teachers' Diploma Examination Pass List 493
Ability to Teach Pass List 496
Meetings of the Council 498
Half-yearly General Meeting 502
Why did we Go to War? By the Right Hon. Joseph A. Pease, M.P. 495
The Foundations of Christian Education. By Prof. F. W. Förster 497
Prize Competition 499
Sane Sex Teaching: VII, Education for Parenthood. By C. W. Saleeby, M.D. 501
Reviews 508
Elementary Logic (Sidgwick); Studies in the Minimum Wage (Tawney); Clio Enthroned (Lamb); A Schoolmaster's Apology (Alington); Varisco's The Great Problems (Lodge): Musical Interpretation (Matthay); Perception, Physics, and Reality.
Overseas 512
General Notices 513
Publications Received 515
Mathematics 516

The Educational Times.

A SELF-GOVERNING PROFESSION.

Teaching children is an occupation that has always attracted persons of independent temperament. Among such persons there has always been an inclination to oppose interference or control, either by the public outside the school or by other teachers inside. The teacher has always claimed to be monarch in the kingdom of the school or of the form-room. In school work, more than in most occupations, it is personal influence that counts. The sculptor takes the formless marble, and fashions it into a semblance of life. The teacher knows that the material in the form-room is neither formless nor passive; the problem in school is different from the problem of the studio. Yet the teacher shares the confidence of the artist, and believes that influence can do much to guide and shape the destinies of the pupils. It is this confidence, felt by each teacher in the possibilities and value of the work, that differentiates the teaching profession from most other occupations, and which is responsible for the teacher's claim to be independent in his work.

Hence it has happened that teachers have lent themselves far less than the men and women of other professions to combination. It is true that the teachers in public elementary schools have, in recent years, overcome this dislike for combination, and have formed a Union that has grown year by year in numbers and in strength until it is likely to include every single certificated teacher. In the secondary sphere of education a movement in the direction of combination has been going on among certain groups for the last twenty years. In a few of these groups the organization is practically complete, and almost every school belonging to the group is a member of the association of that group. In other groups of secondary teachers the willingness to combine is at present by no means universal.

The dislike of union for combined action is most apparent among the principals of private schools. The feeling is natural. It is just because of its comparative freedom that work in a private school is so attractive. The men and women who carry on such schools are those, for the most part, who are conscious of a definite call: who know and understand the duties they have undertaken, and feel that they have the power to carry them out. The officer joining a regiment receives and carries out the instructions that are laid upon him. The clerk entering a commercial house learns his business from his immediate superior. The young doctor has studied in the hospital the recognized way of dealing with each ailment. The teacher in many cases is conscious of a mission, and does not feel the need of instruction.

It is easy, therefore, to understand the wish for independent work; but outward conditions change, and individual preference must give way. In the changed conditions of modern life it is no longer possible for the teacher, whether principal or assistant, to pursue a course uninfluenced by the organization of the State. If the school, public or private, has no direct dealings with State organization, it is indirectly affected by those that are. Public opinion more and more demands that all schools should be under some kind of control. The real point at issue is whether that control should be exercised by the schools themselves or by outside and possibly unsympathetic bodies.

At present the Board of Education control some thousand secondary schools. The Board are administrators, and their administrative control will quite rightly affect a larger number of secondary schools every year; but, owing to the want of any other authoritative body, the Board have been forced into an attempt to control curriculum, examinations, and methods of teaching. Many people feel that such action is not the proper province of a Government Department. For this very reason, that the Board are beginning to exercise a control over pedagogical matters, many schools hesitate to come within the Board's sphere of influence. The Board exercise their in-

fluence in no harsh or autocratic way; on the contrary, they are always willing to listen to the strictly professional point of view when it is laid before them by one or other of the associations of secondary teachers, and it must be allowed that the Board have exercised a very useful function.

If the Board did not offer guidance on methods of teaching, systems of organization, and choice of subjects, there is no other body at present in a position to do so authoritatively; but the experience of the last twenty years is to some extent hopeful. During this period a very large number of teachers have overcome their instinctive dislike to combination. It is now possible that the system of organization begun among teachers may continue until teachers shall form a self-governing profession. Schools will be governed either by the Board of Education or by themselves. To a certain extent the administrative control of the Board is necessary and helpful. In other matters it would be better that teachers should govern themselves. The training of teachers, the conduct of school examinations, the choice of subjects, and the methods of teaching should, with due consideration for the authorized views of the administration, be left for decision to teachers themselves.

The first step towards the formation of a Professional Council that shall unify, strengthen, and consolidate the teaching profession and enable it to voice collectively and authoritatively its views on subjects that it alone can rightly know is registration. It is said that some teachers have still omitted to send their names to the Teachers' Registration Council. That this is so must be owing to a complete misconception of what that Council stands for. The question is asked: How does registration improve a teacher's qualifications? Such a question is entirely beside the matter. Teachers ought, no less in their own interests than in the interests of the education given to the children of the nation, to become a self-governing profession. The time is past when a teacher could carry out individual views without interference. The organization of secondary education will be extended to include a larger and larger number of schools. Part of this organization will be undertaken by the State, part must be done by teachers themselves. The Registration Council is appointed to form a list of teachers; but, when that task is successfully carried out, the Council will certainly enlarge its functions. The first step is a complete list. Therefore, to those who are still unregistered, the urgent message comes: Enrol at once.

NOTES.

The Demand for Women Teachers.

Education Committees are confronted with great difficulties in carrying on their schools, owing to the large number of teachers who have joined the army. In London alone some eight hundred to nine hundred men from the elementary schools have applied for leave of absence on account of the War. In some cases the vacancies are being filled by women. In the United States it is quite usual for women teachers to take classes of boys. In England a similar course has often been advocated. For young boys there is much to be said in favour. But the question of salary is thereby raised in an acute form. We have always held that salaries should not be decided by sex alone. If it is now found that women teachers are able to take classes of boys as large as those taken by men, to work for the same hours, and to carry on the teaching as successfully as it has been done in the past by men, the case for equal salaries will have been greatly strengthened. The need for teachers is, we believe, so urgent that any woman with suitable qualifications can at once be sure of getting work.

Free Education for Children in Distress.

There is a universal desire to show every possible kindness and to give every possible help to the Belgian refugees, whose number is increasing daily. In secondary schools this desire takes the form of the offer of free education. The same sympathetic offer is made to the children of officers who have fallen or who may be financially embarrassed by the War. Many schools will be hit hard by the War, yet they are all willing to do what they can to help. In reference to the larger schools, announcements have been made in the newspapers of the offer of free places; other schools are "just doing it" without announcement. The London County Council have decided that Belgian children who had been attending a school of a similar type in their own country may be admitted without fee to the Council's secondary schools. No doubt the same policy will be carried out in other areas.

Young Highwaymen.

Miss Burstall's letter to the *Times*, at the beginning of last month, put an end to the ill-advised proposals that a children's army should be organized in order to collect money for the National Relief Fund, and that steps in rank should be given to each child according to the amount collected. The scheme was obviously put forward without due consideration, and Miss Burstall, writing on behalf of a group of head mistresses, was able to demonstrate its unsuitability. It is, of course, great fun for children to collect money instead of thinking of their lessons. They would be reminded of the highwaymen of their favourite stories, and the element of competition would add to the excitement. Everyone wants to help those who are suffering especial hardships. Collecting, or even giving, money is often the easiest way. Far better is it in the midst of inevitable disturbance to go on steadily with the daily tasks, and to be ready to help by personal effort when there is an opportunity. The distress is so widespread that everyone may find a neighbour to help.

It was perhaps to be expected that Dr. Montessori

Mme Montessori's Visit.

should find herself obliged to postpone her intended visit to England; but the news is none the less a disappointment to the many students who had hoped for a course of training, and to the still larger educational public who had promised themselves the pleasure and profit of listening to an occasional lecture. Even were the lecture delivered in an unknown tongue, the listener would learn something of the marvellous personality of the lecturer. Mme Montessori was to have lectured to members of the College of Preceptors. It is announced that the additional leisure obtained by the postponement of her visit to England will enable the Dottoressa to complete a manual showing how the system may be adapted to the use of children of from six to ten years of age. In the meantime the study of her work is continuing and is growing in this country. There are now many teachers who have been trained in Rome, and many Montessori classes are at work. In one locality a group of ladies have organized a Children's House, primarily for the relief of families suffering from the War, but, in the second place, to afford an opportunity to infant teachers in the neighbourhood of seeing how the method is worked.

Shall German be taught?

It is interesting to notice the different attitudes taken in different parts of the country towards the teaching of the German language. At a meeting of the governing body of a secondary school, it was proposed "amid applause," as the newspaper account tells us, and was carried, that in future no pupil should be taught German. The Head Master who was present stated that German was not taught in the school, so that the resolution was merely a display of feeling. Another newspaper, commenting on the fact that the entries for the German classes at a large technical institute had been less than usual, points out that whatever the result of the War a considerable part of the world's trade will be conducted in German, and that the absence of German clerks makes it all the more necessary for young Englishmen to study the German language. Dr. Gregory Forster is reported to have said that at University College there were freshmen this term of German and Austrian nationality, and that their admission was only a continuation of the policy of freedom and toleration that characterized the College. There will be conflicting views, and there will be a growing demand for classes in Russian, but neither business men nor scholars will neglect the German language.

Imperial Studies.

Before the outbreak of the War the University of London had organized a course of Imperial Studies. A pamphlet has just been issued giving full particulars. It has been drawn up by a widely representative Committee, of which Lord Milner was Chairman. The courses include lectures on Geography, Anthropology, Sociology and Comparative Religion, History, Languages, Law, Political Institutions and Public Administration, Economics, Statistics, Commerce and Finance, and Transport and Communication. There are also public lectures, without fee, for the non-academic student of affairs. The Committee point out that the modifications induced in the life of oversea communities by their contact with British civilization have been no more profound than the reactions of other cultures upon the insular British community. "It is with these mutual actions and reactions, and the incidental problems arising therefrom, that Imperial Studies are concerned." "The outbreak of the War, and all that it involves, makes it more, and not less, necessary to provide teaching in regard to the great problems of the British Empire." Copies of the pamphlet may be obtained on application to the Academic Registrar, University of London.

A Plea for Recreation.

Bishop Welldon, speaking the other day at the Manchester Social Club, put in a plea for a reasonable amount of recreation. We endorse this view. Some few persons there are who think lightly and selfishly of the present crisis. But most people are fully alive to the seriousness of affairs. They feel a distaste for anything of a recreative character. Yet there is truth in the adage that "all work and no play makes Jack a dull boy." At this time we cannot afford to be dull. We need to be alert, to have all our faculties about us. To think of nothing but the War, to read nothing but newspapers, may produce a mental inertness or a nervous jumpiness that is prejudicial to sound action. Bishop Welldon thinks that, in time of war, life should go on, as far as possible, in the ordinary way, and that we should exhibit the utmost calmness and resolution in the face of friend and foe alike. It must be remembered that the crisis has aroused in everyone additional energy, and that this energy should be used in gaining additional fitness, and not frittered away in reading and discussing sensational reports and their subsequent contradictions.

The Value of Nature Study.

Lord Sudeley, in opening the autumn exhibition of the School Nature Study Union, which was held last month at the London Day Training College, read a letter from the President of the Board of Education. Mr. Pease congratulated the organizers on their decision to open the exhibition in spite of the war, and gave the assurance that both he and the staff of the Board of Education attached "the greatest importance to Nature Study in the schools as a means of encouraging children to take an interest in their surroundings and cultivate a habit of accurate and intelligent observation." The Board are now engaged in drawing up a chapter on Nature Study for a revised edition of "Suggestions to Teachers." In preparing this they have availed themselves of the help of the School Nature Study Union. It is difficult to speak too highly of the value of this study, when it is properly organized under suitable conditions. Cases of

apparent failure can generally be explained by the fact that the subject has been forced upon teachers who have no natural aptitude for giving it.

Private Schools.

The Report of the Joint Committee of the College of Preceptors and the Private Schools Association was presented to the Council at the September meeting. Our readers will remember that in the August number we gave an account of the deputation to Mr. Pease that was arranged by this Joint Committee, with a view to induce the Board of Education to undertake the inspection of private schools. The deputation met with scant encouragement, and for the moment nothing further can be done. But this important fact has been shown, that private schools wish to accept inspection at the hands of the Board. Schools belonging to the Preparatory Schools Association are, Mr. Pease stated, to be inspected at the rate of twenty a year; later on, he thought, it might be possible to inspect new private schools; but he doubted if the times were ripe for the compulsory inspection of all private schools. The policy of these schools must, therefore, be to organize themselves and to improve their efficiency, both in order to hold their own against State-aided schools and to prepare for a State inspection in the future.

State Control.

There is one hopeful sign for privately organized education in this country. The result of State education in Germany will cause English administrators to mark time for a while. Mr. Sadler, writing in *Indian Education* just before the War broke out, discusses the effect of State organization. He points out that at the present moment there are two strong movements, which are to a certain extent conflicting. There is an intense desire for wider opportunities for the development of personality, and at the same time "in the great legislative schemes which meet with popular approval there looms the growing power of the administrative State." "The State," he says, "bids fair to use education as a means of national discipline and social reform." For the moment, at any rate, any further attempts on the part of the State to control political thought through the schools will be viewed with suspicion, and many people will see in private schools a guarantee of liberty. Mr. Sadler ends his article with these words: "The education which the State will provide must carry with it opportunities of varied self-expression." A greater variety will be assured by the maintenance of private schools.

Teachers and the Universities.

There was a time when it was understood that the Authorities did not smile on the ambition of teachers in public elementary schools to become graduates. The reason, perhaps, was that many men and women qualified themselves for graduation by burning the midnight oil with much self-denying effort while they strove from books alone to qualify themselves for graduation. The knowledge thus gained was valuable, but was not comparable to the advantage of the impact of mind on mind which comes from listening to lectures and talking to fellow-students. We believe in the value of a University training for all teachers. Sir Robert Blair evidently shares this view. Speaking the other day at Leicester he said: "The teacher must be the agent of the new moral fervour, and, to be of the fullest use in this, teachers ought to be largely educated at the Universities—not so much for the degree, but for the first-hand study with those who are working for the extension of knowledge." If this is not everywhere possible, it would, he thought, bear the richest fruit where carried out.

Head Mistresses and the Examination Circular.

The Executive Committee of the Association of Head Mistresses have given a preliminary consideration to the important circular on the subject of examinations, which was recently issued by the Board of Education. They have put forward the statement which we give below, and intend to consider the circular in detail at a later date.

The Association of Head Mistresses desires cordially to welcome the general policy as to Examinations set forth in Circular 849. Head Mistresses are particularly gratified to find that the Circular embodies certain principles for which they have long contended, namely, the simplification in character and in number of examinations in schools; the stress laid on the course of study rather than on the examination test; and the co-operation of teachers.

While reserving its right to independent judgment on details, the Association will heartily support the main proposals, and trusts that it may be possible to carry them into effect.

The Association desires, however, to state very clearly that it would not wish to see all girls that remain in school beyond the age of sixteen subjected to compulsory examination; nor would it wish to see the Higher Examination made compulsory on older scholars. As already stated, it values the stress laid on the course of education, on training rather than on examination tests.

SUMMARY OF THE MONTH.

Glasgow Students and M. Poincaré.

It is stated that the students of Glasgow University have asked President Poincaré if he is willing to accept the title of Honorary Lord Rector of the University, and that the Pesident has accepted the offer, at the same time thanking the students most cordially.

Duty of Undergraduates.

The Vice-Chancellor of Oxford University, Dr. Strong, in an address to Convocation, said he hoped that every able-bodied graduate would join the Officers' Training Corps if he was not already a member. The drills would to some extent interfere with University studies and to a large extent with games, but he hoped that men reading for degrees would still be able to make good progress, and he counted confidently on the readiness of the undergraduates to forgo their games. He hoped they would be able to attend lectures in their uniform, and he proposed to recognize it as academic for all occasions in which he was concerned as Vice-Chancellor. They started their new year in conditions unlike any that any of them had known, with much perplexity and anxieties of various kinds, but also, he thought, with good hope. It was their business to see the thing through, and, please God, they would.

£10,000 for Cardiff Medical School.

At a meeting of the Council of the University College of South Wales, it was announced that the anonymous donor whose munificent offer to erect and present to the College a school of preventive medicine and medical school buildings was accepted by the Council in May last had promised another £10,000 towards the building fund for the completion of the medical school.

Changes at Harrow School.

Mr. Clement du Pontet, who came to Harrow School in 1898, has resigned his house and has been appointed librarian, in succession to Mr. B. P. Lascelles, who has resigned that position, but continues as Curator of the Museum.

Reorganization of the Home-Reading Magazine.

Members have been notified of the changes in the form and arrangement of the magazines. They and newcomers will observe that, in the place of the sectional magazines issued hitherto, a complete and enlarged magazine (to be called the *Home-Reading Magazine*, price 3d.) will be issued monthly (October to May), and a proportion of space allotted each month to the various sections. Each number will also contain a literary "editorial" by some well known writer, the current "Union Notes," and the "Club Corner" (Young People's Section). The Committee is confident that, in its more complete form, the magazine will not only prove of greater educational value to present members of all sections, but will also make a wider appeal to students and readers generally. It is hoped that members will show their appreciation of the reorganization by introducing the magazine to any who may possibly become members.

Resignation of a Notable Oxford "Head."

The Provost of Oriel College, Dr. Charles Lancelot Shadwell, who has, in consequence of failure of health, been resigning recently most of the offices held by him in the University, has now decided to resign the office of Provost as from November 5.

Commission for a Medical Officer.

Dr. G. A. Auden, the School Medical Officer of Birmingham, has been given leave of absence to enable him to accept a commission in the Army. A temporary School Medical Officer is to be appointed during his absence at a salary of £500 a year.

Cost of Education in War Time.

According to a special report presented to the London Education Committee, the estimated additional expenditure thrown upon the Education Committee by the War is £130,000, but owing to certain adjustments the figure will be reduced to £106,000. The increase is due to two principal items—the salaries paid to officers of the Council away with the Colours and a large increase in respect of the cost of feeding school-children.

Rhodes Scholars.

Mr. Cecil Rhodes, said Dr. Strong at Oxford, included the Germans in his scholarships scheme, and most colleges probably had received German Rhodes scholars. Of late years Germans outside the Rhodes Trust had come in increasing numbers to Oxford. Hardly any college probably had been without them. They had welcomed them and loved them. They had passed easily into the inmost circle of their friendship. They had never believed, and they did not believe now, that these men were spies and that all their frank and direct intercourse with them was unreal.

Leeds University and the War.

Mr. M. E. Sadler, addressing the University of Leeds at the opening of the new session, said that news had already been received of three casualties among their men, these being E. W. Wilson, a former engineering student and cadet in the Officers' Training Corps, who had been killed in action; A. W. Mellor, an ex-cadet of the Officers' Training Corps, who was reported missing; and Captain Nugent, late adjutant of the Officers' Training Corps, who had been wounded, but was making satisfactory progress. Continuing, he said that 154 members of the University, the majority of them cadets or ex-cadets of the Officers' Training Corps, had been gazetted to commissions or were on active service in some other capacity. Twenty-two were members of the staff of the University. A large number of other members had applied for commissions, there being altogether 256 members who were either on active service or had applied. The Corps, in spite of depletion, was still at its full strength of 130, and a reserve contingent had been formed. In the medical school a large number of members of the staff and students were on active service.

Appointments.

Mr. S. H. Michell, B.A., L.C.P., of the Woolwich Polytechnic, has been appointed Director of Technical Education in connexion with the Cheltenham Technical Schools.

Sir Walter A. Raleigh, M.A., Professor of English Literature at Oxford, has been elected to a Fellowship at Merton College. Mr. G. T. Gimlette, B.A., scholar of St. John's College, has been elected to a Senior Scholarship at that college.

Mr. Percy Simpson, M.A. Cambridge, has been appointed University Lecturer in English at Oxford, and Mr. Dikran Garabedian, B.A., St. John's College, Cambridge, Licencié ès Lettres, Paris, has been appointed Taylorian Lecturer in French at Oxford.

CAREERS FOR GIRLS.*

VII.—HORTICULTURE.

By M. C. Rayner, B.Sc.

"Horticulture for Women!" The phrase might almost be described as the text of a sermon first preached some ten or fifteen years ago by the exponents of a then novel theory—that the entrance of women into what was euphemistically termed "the lighter branches of Horticulture" was the first step towards the formation of a kind of rural millennium, in which the regrettably large class of educated but unemployed girls and women of the better class were to play a leading part.

In this way, argued the promoters of the movement, the rural exodus would be arrested, the Small Holdings movement would be benefited, and the problem of a career for middle and upper class girls with a taste for outdoor pursuits and a very limited capital would be largely solved.

It need hardly be pointed out here that a considerable number of working-class women have always been economically concerned with horticultural operations, and that a few isolated women of the educated classes were engaging with varying success in various departments of Horticulture before this cry of "Horticulture for Women!" was raised. The idea, however, that practical gardening offered a career to the young woman of the educated classes is a modern one, and it was popularized by the movement to which I have alluded above. It is to be regretted that the movement was in the first instance rather an artificial one: that is to say, it owed little or nothing to a spontaneous demand from any considerable number of women for instruction in practical Horticulture or in the sciences bearing directly on it. It is, perhaps, also to be regretted that the movement was not

* Previous articles have appeared in May, June, July, August, September, and October.

initiated and controlled by practical Horticulturists of either sex, possessing a knowledge of the conditions and a clear apprehension of the qualifications essential to success.

There is probably no career open to women in which the conditions have been less clearly understood by persons desiring to engage in it, and those responsible for the propaganda have too often forgotten that Horticulture in its more practical aspects is an old and very highly organized profession, controlled by a complex set of conditions and, until recently, in the hands of an unusually able and highly skilled class of male workers.

There is no need to sing the praises of gardening as an art or as a pastime; my object is rather to attempt to show clearly what prospects the work offers to the large class of educated girls who are, or will be, dependent upon their own exertions, and who are workers. The value of a training in practical gardening to women who already have horticultural interests is sufficiently obvious; with gardening as a hobby this article is not concerned.

It is important, in the first place, to realize that Horticulture (with "Horticulture for Women!" we have no concern) covers a large field of work, and, in order to understand the economic position of educated women—or men—who propose to engage in any branch of the work with the view of earning a living, it is essential to have a clear conception of the state of things actually existing. An old student of the writer who is starting on what promises to be a successful career as a garden architect and designer said recently: "Horticulture as a profession for women has been too loudly praised, and the darker side always suppressed; it is time, I think, to give facts without embroidery"; and she was kind enough to add: "I think you will be doing a good service to women horticulturists if you put the facts as they really are." This I believe to be a fair statement of the case. There have been too many drawing-room meetings, too few attempts to investigate and understand the conditions.

In its higher branches Horticulture comes into close touch with natural science in several of its branches; in its lower branches much of it is labourer's work. The culture of plants is yearly coming into closer touch with advanced scientific work, *e.g.* hybridizing and plant-breeding, the investigation of plant diseases, &c., and the old prejudices of the practical man are fast breaking down. There are already a limited number of appointments in connexion with such work, for which women are equally eligible with men. Some of them are research fellowships and scholarships, others are salaried posts. Salaries are not on a lavish scale, but they are usually adequate, and the work is unusually pleasant and congenial to a qualified woman. For work of this kind a knowledge of practical horticulture is of great value—often it is indispensable—combined with a degree in science or a scientific training of a more thorough kind than that usually associated with a horticultural degree or diploma.

In a general way, it may be said that a sound scientific training is essential and that a knowledge of practical horticulture is often a valuable qualification for such work. Then there are a limited number of horticultural teaching appointments, involving a knowledge of botany in addition to horticultural experience. Of such posts, a few are in connexion with University institutions; the majority are school or county appointments. The exact qualifications vary with the post. An adequate training can be obtained in three years, or, if a preliminary knowledge of either science or gardening can be assumed, in a shorter time. Salaries range from £100 to £150 per annum, with or without board and lodging. Although the number of such posts is not large, there is at present a difficulty in finding qualified women to fill them, if anything at all serious in the way of botanical teaching is required. The scientific training received in the course of a Diploma Course in Horticulture is insufficient for this purpose, and requires to be supplemented by additional laboratory training.

To pass on to the economic prospects of women in some of the more strictly practical branches of the profession, which, for convenience, may be classified somewhat arbitrarily as follows:—(1) Landscape Gardening; (2) Market Gardening and Nursery Gardening in their various branches; (3) Salaried Posts in Private Gardens. To consider each of these branches in detail:—

(1) Landscape Gardening.

The laying out of new gardens is often left largely to chance, and sometimes, it will be admitted, this haphazard method leads to happy results. More often than not we can only regret the waste of opportunity exhibited by many of the gardens surrounding newly built private houses or institutions. There should be an opening here for the expert who has a practical knowledge of plants and their requirements, knows something of architecture and surveying, and possesses a good deal of artistic feeling and experience. I believe there is a demand for both constructive and advisory work of this kind—not a very large demand at present, but there is a growing desire on the part of owners of new gardens to have them laid out to the best advantage, and to admit that professional help may result in a saving of time and money.

On the other hand, it is undoubtedly true that, while the architect in many cases would be only too pleased to collaborate with someone who could bring expert horticultural knowledge to bear on the laying out and planting of gardens, the added expense is often an obstacle from the employer's point of view.

The work of the garden architect is delightful in itself. It requires ingenuity and originality of ideas, and leaves time for the development of other interests, literary, artistic, or scientific. This counts for much, but other facts must be taken into account by the woman who is entirely dependent on her own exertions. The training period is long and comparatively expensive, and there may be a long probation before an adequate income is assured. A sound knowledge of gardening and of land surveying, as well as natural ability and experience, are indispensable to the woman, as to the man, who takes up such work professionally. Given these qualifications, *and a small private income*, many interesting possibilities open up as the work grows; but it is not a career to embark upon if the worker is entirely dependent upon his or her exertions for a livelihood.

(2) Market Gardening and Nursery Gardening.

Not infrequently it is asked whether a woman is competent to manage a large market or nursery business successfully. So far as my experience goes, there is no *a priori* reason whatever why a competent woman, given the requisite tastes, which are unusual, and the requisite capital and experience, both of which must be considerable, should not manage such a business quite as satisfactorily as a man of the same class. Such a hypothetical case need not detain us. Any woman with the necessary judgment, experience, and capital is likely to be quite able to look after herself. The problem as it usually occurs may be stated somewhat as follows. A girl, with or without small capital, takes a horticultural training extending over a couple of years, and, armed with a horticultural diploma, wishes to start a small market or nursery garden, either alone or in partnership, or desires to obtain paid employment in such a garden. What are her prospects? It is difficult to give any general answer to this question. Circumstances vary so much in particular cases. Assuming that capital is available, and that there is a strong predilection for hard manual work, the following points should be taken into account—

(*a*) Considerable capital is required to start even a small market place with any prospects of financial success. A capital of £500 is an absolute minimum, unless there is a small private income to fall back upon. (*b*) The work is most laborious and the hours long. The owner of a small garden must be his or her own foreman, and labour must be strictly economized. So far as women's labour is concerned, glasshouse work has an advantage over outdoor work, but the cost of fuel makes very serious inroads upon income. It is only by the hardest work that such a garden can be made to pay, and it must be remembered that a couple of years' student work do not preclude the possibility of having to buy experience very dearly.

There undoubtedly may be women who find the work so congenial that it compensates for all disadvantages, but, from the point of view of the educated woman, the following drawbacks must be emphasized. The manual work is so hard that it leaves little time or inclination for anything in the way of intellectual effort, and the local conditions are often such that one is cut off from congenial social intercourse. These drawbacks are, of course, almost equally operative in the case of

an educated man engaged in such work. The latter of them is not inherent, but is incidental in many cases to the conditions under which the work is carried on in this country. On the other hand, the life, if not too laborious, is undoubtedly healthful.

During recent years various branches of nursery gardening, such as jobbing gardening and the care of small town gardens, have been suggested as specially suitable for women. Much of what has been said above applies here with equal force. It is possible to make a rather precarious living at such work, and a few women may find the life a congenial one. It is absurd and misleading to suggest, as has been done, that there is much opening for a career, justifying the expenditure of considerable capital on a college training or that the life will prove a congenial one to many women of the class we are considering. The possession of even a small private income alters the conditions at once: the warning note is sounded in the interests of the women without this to fall back upon.

(3) Paid Posts in Private Gardens.

The prospects of the woman who has taken a horticultural training with the view of taking a salaried post at its conclusion may now be examined. In this case, as in the last, it is difficult to give precise information, the conditions being so very variable where women are concerned. It is an undoubted fact that in response to the supply a demand has arisen—of a rather irregular kind—for women gardeners; sometimes involving other duties, such as those of companion; sometimes because the ordinary working-class gardener has proved unsatisfactory; sometimes even—as I have heard it put by a practical woman, wise after several years of such work—in order that they should become professionally "the plaything of cranks." The drawbacks to the work are chiefly of the same nature as those already specified under "Market Gardening."

It is most difficult to give exact information about pay. Most of the applications of which I have recent personal knowledge offer £25 to £35 per annum, all found, or more, with a cottage and certain perquisites. On the other hand, a public man applied recently to one of the best known horticultural colleges for a woman as head gardener, with exceptional experience and qualifications, and offered £65 per annum and a cottage. This post involved the control of six or seven men, and the work could not have been attempted without six or seven years' practical horticultural experience!

It is not easy to generalize as to the prospects offered by this kind of work. It appears to the writer that, subject to the general criticisms made above under market gardening, the opening for educated women in this department of gardening is not as a competitor with the working-man gardener, but to fill posts for which qualifications in addition to horticultural knowledge are required, not only in private gardens, but more especially in connexion with institutions and homes.

The value of really competent women in charge of the gardens of institutions where there are special reasons for interesting the patients or inmates in active or outdoor pursuits will be obvious to all. The undoubted suitability and superiority of educated women for such work, while willingly admitted by those in charge of institutions, is, however, not always recognized in a more practical form, nor, I believe, has public attention been called to it.

To summarize, in conclusion:—

1. There are a limited number of openings for women with scientific training *and* a knowledge of Horticulture, both as teachers and in other capacities. Such work offers every inducement to the intelligent, educated woman to take it up.

2. There is a demand for constructive and advisory work in garden designing. The income is precarious, and women without private means are not advised to engage in it.

3. In ordinary garden employment in this country—*i.e.* market and nursery gardening and paid posts in private gardens—there is a livelihood to be made, for women as for men.

It is, however, in the opinion of the writer, doubtful whether such work justifies an expensive training, or is desirable when it involves competition with working-class labour. Openings for educated women with a taste for outdoor life are rather to be sought in the direction of posts which involve horticultural knowledge and experience in addition to other qualifications.

CURRENT EVENTS.

A member of the College staff has joined the Army. The Council have granted him leave of absence with full pay, less the Army allowance.

Lieutenant Felix Boillot, Head of the French Department at Bristol University and Chief Examiner to the University of London, is now Commandant of the 31st Company of the 110th Regiment of the French Army at Sarlat.

M. Liard, the Rector of the Paris University, has received a letter from the tutorial staff of University College, London, offering to assist professors and students who wish to continue their studies in London, and also offering hospitality to sixty members of the University who, owing to the war, find themselves in temporarily straitened circumstances.

The next combined examination for fifty-three Entrance Scholarships and a large number of Exhibitions, at Pembroke, Gonville and Caius, Jesus, Christ's, St. John's, and Emmanuel Colleges, Cambridge, will be held on Tuesday, December 1, 1914, and following days, commencing at 9 a.m. on Tuesday, December 1.

At two of the College of Preceptors Provincial Centres—Manchester and Newcastle-on-Tyne—the examination halls which had been engaged as usual were taken over by the military authorities for use as hospitals. The Head Master of Manchester Grammar School and the Principal of the Newcastle Modern School very kindly allowed the examinations to be held at their schools.

The Liverpool Education Committee have passed an instruction to establish classes for the teaching of rifle shooting to boys and adults at miniature rifle ranges. It was decided to ask the Board of Education to recognize the classes, and the War Office to make a contribution towards the cost of the ranges and their equipment.

Lord Rosebery has made a donation of £1,200 to the London School of Economics for the endowment of a prize to be awarded annually in the department of railway transport at that School of the University of London.

"England's Duty To-Day," a booklet by the Head Master of Eton, has been published by Francis Collas (3d.). Dr. Lyttelton takes a wide survey of the subject of the present War, briefly sketching German history from the time of the Great Elector. This is followed by an exposition of the point of view of the German Government, their idea of world-power, their view of England, and their notion of liberty. Finally, the author explains the nature of the challenge to England, and the opportunity presented.

The Council of Almoners, Christ's Hospital, have power under a clause in their scheme to admit a limited number of children of persons distinguished in the service of the Crown; and they are prepared to consider applications for the admission of children of officers and other persons who have served with distinction in the present War, and especially children whose fathers have thus laid down their lives for their country. The present number of vacancies under this clause is seven.

The following Doctorates of the University of London have been conferred:—D.Sc. in Chemistry, Mr. F. B. T. Thole, East London College; Mr. H. A. Tempany, External Student. LL.D., Mr. W. Bennison, External Student. D.D., Mr. A. T. Cadoux, External Student. D.Sc., in Botany, Miss E. M. Berridge, External Student. The Degree of B.Sc. by Research has been conferred on Miss W. H. Wortham, External Student.

The Chairman of Council of the Private Schools Association (Incorporated), Manor House School, Clapham Common, writes: "I shall be glad if you will make it known through your columns that many schools belonging to the Private Schools Association (Incorporated) would be pleased, during the present crisis, to undertake the education of children of officers, especially those who have been killed or incapacitated during the War, at greatly reduced fees. I will gladly send information as to schools to those who let me have particulars of their requirements."

Clough's Correspondence College,

TEMPLE CHAMBERS, LONDON, E.C.

The following are a few of the letters received from some of ***Clough's A.C.P. and L.C.P.*** *successful Students at the* ***Diploma Examinations, 1914.***

Bryn Celyn,
Park Crescent,
Bargoed.
October 1st, 1914.

G. B. CLOUGH, Esq.
Dear Sir,
I am pleased to be able to inform you that I have completed the examination for the **Diploma of A.C.P.** with **Honours in Arithmetic.**
I must thank you very much for your valuable help, and I shall be very pleased to recommend your College to students requiring help.
I shall be joining again in the future to study for L.C.P.
I remain,
Yours faithfully,
J. S. PRENTICE.

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45 Brunswick Square,
Herne Bay.
January 22nd, 1914.

G. B. CLOUGH, Esq.
Dear Sir,
I was delighted to hear this morning that I have passed in the Education group of Subjects, and as, last summer, I was successful in Latin, French, Botany, and Physiology, I am now entitled to the **L.C.P. Diploma.**
My sister, too (also Clough's student), has been successful in the Education papers of the A.C.P. Examination, which result she has just received, and as she passed in all the other subjects last summer with **Honours** in **History** and **Botany,** she is entitled to the **Associate Diploma.**
We both want to thank you for once again successfully coaching us, especially for the splendid notes we received each week.
Yours faithfully,
MARY A. CURLING.

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1 Trott Street,
Battersea, S.W.
22nd January, 1914.

G. B. CLOUGH, Esq.
Dear Sir,
I have just heard the result of the A.C.P. Examination. I am delighted to say that I have passed in all the subjects taken this year, obtaining **Honours** in **Botany** (**Honours** in **Arithmetic** previously). In a few months I am hoping to begin working for L.L.A., when I shall rejoin your Classes.
Yours faithfully,
E. A. BURTON.

Glenthorne,
Crawley, Sussex.
October 1st, 1914.

Dear Mr. CLOUGH,
Have just received the result of the recent summer examination of the College of Preceptors for the Diploma of Associate, and am pleased to inform you that I have passed in the Science Group in Botany and Physiology with **Honours in Physiology.** This was an agreeable surprise for me, and I am sure I owe much of my success to your most excellent tuition.
Yours faithfully,
THOMAS CLARKSON.

38 Portland Road,
Stretford.
22nd January, 1914.

Dear Mr. CLOUGH,
I have received the result of the A.C.P. this morning. I have been successful in eight papers which I took, and am pleased to say I have obtained **Honours** in **English.** This is the second Examination, for which you have tutored me, in which I have gained **Distinction.**
I wish you to accept my sincere thanks for your splendid tuition. Your notes were ideal, and it was mainly through them that I obtained such a gratifying result. As you are aware, I had not much time for study, and so relied on the notes mainly for my information. The English Paper, at the A.C.P. Examination in December, and your notes on this subject contained many things in common, especially the sections dealing with the constructional part of the language.
I hope still further to solicit your help, and trust that our relations will be attended by success in the future.
Thanking you for all past help,
I remain,
Yours faithfully,
JOHN WARD.

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2 Newport Terrace,
Millbrook,
Plymouth.
Oct. 2nd, 1914.

Dear Mr. CLOUGH,
I heard the result of the A.C.P. Examination yesterday. I have passed in all subjects I took, viz., History, Arithmetic, and Mathematics. I got **Honours in Arithmetic.**
Thanking you for your course of work,
I remain,
Yours sincerely,
A. LANDREY.

Brixton, Plymouth.
January 22nd, 1914.

G. B. CLOUGH, Esq.
Dear Sir,
The result of the A.C.P. Examination came this afternoon. I am pleased to tell you that I have passed in History and Geography, and have gained **Honours** in **English.**
With thanks for all the help I have received,
I remain,
Yours very faithfully,
WINIFRED M. HITCHINGS.

Elmham, Norfolk.
January 22nd, 1914.

G. B. CLOUGH, Esq.
Dear Sir,
I am pleased to be able to inform you that I have just received the good news of my success in the L.C.P. Examination which **completes Diploma.**
I attribute my success wholly to the very thorough preparation afforded by your most excellent papers, particularly in Education.
Believe me,
Yours faithfully,
ARTHUR D. BATES.

41 Wisbech Road,
King's Lynn, Norfolk.
25th January, 1914.

G. B. CLOUGH, Esq.
Dear Sir,
I am very pleased to inform you that I was successful in the Education Section at the Christmas Examination of the College of Preceptors, thereby qualifying for the **Diploma of Licentiate.**
I should like to take this opportunity of thanking you for your great help in Logic, and also in Old English for last August. You have now successfully coached me for **London Matriculation, Certificate, A.C.P.** and **L.C.P.** I may add that I always recommend your Classes whenever opportunities arise.
Again thanking you for your great help in the past,
I remain,
Yours faithfully,
B. A. TAYLOR.

1st October, 1914.

Dear Sir,
I am pleased to inform you that I have received A.C.P. result this morning. I have secured a "Pass" in all the subjects I took under you, and **"Honours" in Geography.**
I have now completed the papers and am entitled to the **A.C.P. Diploma.**
I derived great help from your notes and hints, and they played a good part in my success.
Yours faithfully,
G. B. CLOUGH, Esq.

(*N.B.—The original of this letter, with name and address, can be seen at the College.*)

Morley House,
Chester Street,
Leigh, Lancs.
Oct. 1st, 1914.

Dear Mr. CLOUGH,
I received the result of the L.C.P. Examination this morning, and am pleased to state that I have passed in the Education Group (the only one I took).
Let me take this opportunity of thanking you for the excellent tuition I received at your hands. The notes I received were excellent, and I derived special benefit from your capital notes on Logic.
I desire to join your classes for the Science Group.
Again thanking you,
I remain,
Yours truly,
FRED SMITH.

---

39 McDonald Street,
Lamberhead Green, Wigan.
25th January, 1914.

Mr. G. B. CLOUGH.
Dear Sir,
I am very glad to be able to inform you that I have been successful in passing the Education Section of the A.C.P. Examination. This, of course, qualifies me for the **Diploma of A.C.P.**
I can sincerely testify to the extreme "Thoroughness" of your tuition, and thank you very much for your valuable assistance and kindness.
Assuring you of my best efforts on behalf of your Classes,
I am,
Respectfully yours,
JOHN ASHURST.

Classes are now being formed for the January, 1915, and September, 1915, A.C.P. and L.C.P. Exams. Intending Candidates should join at once.

For full particulars of any of CLOUGH'S CLASSES—

PUPIL TEACHER, PRELIMINARY CERTIFICATE, CERTIFICATE, MATRICULATION, OXFORD AND CAMBRIDGE LOCALS (Junior and Senior), A.C.P., L.C.P., L.L.A., HIGHER FROEBEL, PROFESSIONAL, COMMERCIAL, AND CIVIL SERVICE,

Write to—

THE SECRETARY, CLOUGH'S CORRESPONDENCE COLLEGE, TEMPLE CHAMBERS, LONDON, E.C.

THE COLLEGE OF PRECEPTORS.

TEACHERS' DIPLOMA EXAMINATION.—SUMMER, 1914.

THE Summer Examination commenced on the 31st of August, and was held in London and at the following Local Centres:—Belfast, Birmingham, Bristol, Cardiff, Dublin, Glasgow, Leeds, Liverpool, Manchester, Newcastle-on-Tyne, Plymouth; Georgetown (British Guiana); Bangalore (India); Lagos (W. Africa); Port Elizabeth (Natal); Assiut (Egypt).

The total number of candidates examined was 169.

LIST OF CANDIDATES WHO PASSED IN THE VARIOUS SUBJECTS.

(*hon.*) attached to a name, or to a letter denoting a subject, indicates that the candidate obtained Honours in the subject.

THEORY AND PRACTICE OF EDUCATION.

LICENTIATESHIP.

Allen, W. E.
Brown, W.
Buckley, J. C.
Chandler, J. T.
Collar, D. J.
Datson, A.
Donnelly, J.
Douglas, R. R.
Duthie, C. S.
Evans, C. G.
Handover, A. C. P.
Higgins, F. J. T.
McThomas, Mrs. D.
Smith, F.
Squire, W. D.
Walker, Miss A. A.
Warring, E.
Williams, E. H.
Wilson, W.
Wisbey, E. O.

ASSOCIATESHIP.

Alexander, A. K. S.
Amos, Miss L. A.
Bates, E. G. J.
Boyd, J. S.
Brannigan, T. J.
Brown, Miss G. M.
Bushell, W.
Clewitt, N. E.
Cox, Miss A. M.
Criticos, J. M.
Cumper, C. V.
Davies, J.
Doran, Miss R.
Fairless, E.
Fenton, Mrs. B. A.
Gill, E. F.
Harcombe, S.
Jones, Miss M. E.
Keene, E. T.
Kent, J. A.
Knight, J.
Latham, S.
Morris, J. V.
Mundy, H. H.
Perry, E. J.
Pipes, Miss G. H.
Pollock, Miss E. H.
Prentice, J. F.
Reynolds, J. E.
Rhodes, J. W.
Roberts, Miss B.
Roberts, H.
Roche, W.
Sayer, C. L.
Shenton, F. G.
Shepherd, W.
Silk, E.
Simpson, F. R.
Threadgold, W.
Treloar, A. B.
Williams, J.
Willis, R.
Woodward, Miss C. M.

ENGLISH LANGUAGE.

Alen, L. W.
Ashton, Miss M.
Ashton, R.
Beddall, Miss M.
Boyd, J. S. (*hon.*)
Checksfield, Miss C. A.
Cridland, Miss E. S. B.
Doran, Miss R.
Dorey, A.
Durant, H. De L.
Fairless, E.
Gilbert, S. F.
Hirst, E.
Holloway, H. C.
Hostler, A. C.
John, C. H. S.
Kent, J. A.
Long, Miss D. M.
MacSweeney, W.
McThomas, Mrs. D.
Raines, W. H.
Rees, T. W. E.
Rhodes, N.
Roche, W.
Sherratt, C. E. S. (*hon.*)
Silk, E.
Simpson, F. R. (*hon.*)
Thornley, H. J.
Threadgold, W.
Treasure, Miss K. A.
Usher, Miss H. C.
Webb, C. S.
Williams, W. R.

ENGLISH HISTORY.

Boyd, J. S.
Brannigan, T. J.
Bunyan, G. H. A.
Charlton, Miss A. M.
Claxton, S. H.
Clewitt, N. E.
Dorey, A.
Dorward, J.
Fairless, E.
Fowler, F. P.
Gill, E. F.
Harkness, Miss C. E.
Hicks, Miss H. M.
Holloway, H. C.
Hostler, A. C.
John, C. H. S.
Landrey, A.
Long, Miss D. M.
Pollock, Miss E. H.
Raines, W. H.
Rees, T. W. E.
Richardson, Miss M.
Roberts, H.
Roche, W.
Shepherd, W.
Sherratt, C. E. S.
Simpson, F. R.
Treasure, Miss K. A.
Treloar, A. B.
Walton, J.
Webb, C. S.
Williams, W. R.
Willis, R.

GEOGRAPHY.

Alen, L. W.
Ashton, Miss M.
Boyd, J. S.
Brannigan, T. J.
Brown, W. A.
Bunyan, G. H. A.
Bushell, W.
Cann, J. O.
Checksfield, Miss C. A.
Clewitt, N. E.
Doran, Miss R.
Dorward, J.
Drew, Miss E. B.
Edwards, Miss V. K.
Fairless, E.
Fowler, F. P. (*hon.*)
Gilbert, S. F.
Gill, E. F.
Harkness, Miss C. E.
Hicks, Miss H. M.
Holloway, H. C.
Hostler, A. C.
Keene, E. T.
Kent, J. A.
Long, Miss D. M.
McThomas, Mrs. D.
Millie, W. H.
Phillips, H. A.
Pollock, Miss E. H.
Prentice, J. F.
Raines, W H.
Rees, T. W. E.
Rhodes, N.
Richardson, Miss M.
Roche, W.
Shenton, F. G.
Sherratt, C. E. S.
Simpson, F. R.
Threadgold, W.
Treloar, A. B.
Turner, F.
Usher, Miss H. C.
Walker, A.
Walton, J.
Webb, C. S.
Williams, W. R.

ARITHMETIC.

Alen, L. W.
Alexander, A. K. S.
Ashton, R. (*hon.*)
Boyd, J. S. (*hon.*)
Checksfield, Miss C. A.
Clewitt, N. E.
Cridland, Miss E. S. B.
Doran, Miss R.
Dorey, A.
Durant, H. De L.
Fairless, E.
Freeman, J. (*hon.*)
Gilbert, S. F.
Gill, E. F.
Harkness, Miss C. E. (*hon.*)
Holloway, H. C.
Ivon, J. F. (*hon.*)
John, C. H. S.
Kent, J. A.
Landrey, A. (*hon.*)
Leonard, W. J. S. (*hon.*)
Long, Miss D. M.
Lush, J. E. H.
MacSweeney, W.
Mann, C.
McWilliams, H. (*hon.*)
Porter, B. A.
Prentice, J. F. (*hon.*)
Rees, H. G.
Rees, T. W. E.
Rhodes, N.
Richardson, Miss M.
Rigney, J.
Roberts, H.
Roche, W. (*hon.*)
Rutter, Miss E. (*hon.*)
Shepherd, W.
Sherratt, C. E. S.
Siddall, Miss G.
Silk, E. (*hon.*)
Simpson, F. R.
Spurr, H.
Stephens, R. H.
Thornley, H. J.
Treasure, Miss K. A.
Treloar, A. B.
Turner, F.
Usher, Miss H. C.
Wall, Miss C.
Walton, J.
Wehner, Miss M. M.
Willcocks, Miss E. J.
Willis, R.
Woodward, Miss C. M.

MATHEMATICS.

LICENTIATESHIP.

Allen, W. E.
Carruthers, J.
Hooper, H. J.
Hudson, D. R.
Williams, W. R.
Wright, J. E.

ASSOCIATESHIP.

Bates, E. G. J.
Boyd, J. S.
Brannigan, T. J.
Cann, J. O.
Fowler, F. P.
Gergawi, N.
Gilbert, S. F.
Harkness, Miss C. E.
Keene, E. T.
Landrey, A.
Lush, J. E. H.
MacSweeney, W.
Mundy, H. H.
Prentice, J. F.
Roche, W.
Silk, E.
Treloar, A. B.
Walton, J.
Willis, R.

LANGUAGES.

e. = Higher English. *f.* = French. *g.* = German. *i.* = Italian.

LICENTIATESHIP.

Dhaze, F. C. J. *e.f.*(*hon.*)
Green, H. W. *e.g.*
Holloway, H. C. *g.i.*(*hon.*)
Ivon, J. F. *e.f.*(*hon.*)
McThomas, Mrs. D. *f.g.*

ASSOCIATESHIP.

Checksfield, Miss C. A. *f.*
Dorey, A. *f.*(*hon.*)
John, C. H. S. *f.*(*hon.*)
Kent, J. A. *f.*
Usher, Miss H. C. *f.*

SCIENCE.

a. = Astronomy. *ch.* = Chemistry. *m.* = Mechanics. *ph.* = Animal Physiology.
b. = Botany. *g.* = Geology. *p.* = Experimental Physics.

LICENTIATESHIP.

Allen, W. E. *m.ch.*
Dhaze, F. C. J. *a.ph.*(*hon.*)
Hooper, H. J. *p.m.*
Ivon, J. F. *a.ph.*
Williams, W. R. *p.m.*

ASSOCIATESHIP.

Clarkson, T. *ph.*(*hon.*)*b.*
Collinson, Miss S. I. *ph.g.*
Cridland, Miss E. S. B. *p.ph.*
Kirby, E. H. *ph.g.*
Rees, T. W. E. *ch.ph.*
Threadgold, W. *p.ph.*

LIST OF CANDIDATES TO WHOM DIPLOMAS WERE AWARDED.

LICENTIATESHIP.

Allen, W. E.
Brown, W.
Buckley, J. C.
Carruthers, J.
Collar, D. J.
Donnelly, J.
Douglas, R. R.
Duthie, C. S.
Green, H. W.
Hooper, H. J.
Wilson, W.
Wisbey, E. O.

ASSOCIATESHIP.

Alexander, A. K. S.
Amos, Miss L. A.
Ashton, Miss M.
Boyd, J. S.
Cann, J. O.
Claxton, S. H.
Collinson, Miss S. I.
Cridland, Miss E. S. B.
Cumper, C. V.
Davies, J.
Dorward, J.
Fenton, Mrs. B. A.
Fowler, F. P.
Harcombe, S.
Hostler, A. C.
Jones, Miss M. E.
Keene, E. T.
Leonard, W. J. S.
Mann, C.
McWilliams, H.
Millie, W. H.
Morris, J. V.
Mundy, H. H.
Pipes, Miss G. H.
Pollock, Miss E. H.
Prentice, J. F.
Rhodes, J. W.
Roche, W.
Rutter, Miss E.
Sayer, C. L.
Shenton, F. G.
Sherratt, C. E. S.
Silk, E.
Stephens, R. H.
Treloar, A. B.
Walker, A.
Wall, Miss C.
Wehner, Miss M. M.
Williams, J.
Woodward, Miss C. M.

WHY DID WE GO TO WAR?

By the Right Hon. Joseph A. Pease, M.P.

The following statement sets out the facts which led up to the present War, as they are recorded in official documents. It is intended to give a plain answer to the question, "Why did we go to War?"

I. Austria and Servia.

The great Empire of Austria and the little Kingdom of Servia have for some time been on bad terms with each other. In the South of Austria there are millions of Austrian subjects who speak the Servian language, and the Servians look forward to the day when they will all be united under one King. Austria has therefore been very suspicious of anything Servia may do to provoke discontent or rebellion among these people, especially in Bosnia and Herzegovina, and ready to take the first opportunity of "giving Servia a lesson." The opportunity came in June this year, when the Crown Prince of Austria and his wife were assassinated at Sarajevo, in Bosnia. It was asserted by Austria that the murderers were provided with arms and explosives for that purpose by Servian officers, and that the passage of the criminals into Bosnia was organized and effected by the chiefs of the Servian frontier service. The Austrian Government, on July 23, sent a Note to the Servian Government making ten demands, with a view to bringing the criminals to justice and to prevent further efforts being directed in Servia against Austria-Hungary. Two of these demands were such as no independent nation could accept. The first was that certain officers, to be named by the Austrian Government, should be removed from the military service of their country, even though they were not proved guilty. The second was that the Austrian Government should appoint its own representatives in Servia to suppress the movement directed against the Austrian Monarchy. Austria asked for a reply within forty-eight hours.

Austria, in making these requests, appears to have been acting in collusion with Germany, for on the very next day the German Ambassador in London told our own Government that "the course of procedure and demands of the Austro-Hungarian Government can only be regarded as equitable and moderate," and also that "Austria might be expected to move when the time limit expired unless Servia could give an unconditional acceptance of Austrian demands." And the German Foreign Secretary told our representative in Berlin that the "Austro-Hungarian Government wished to give the Servians a lesson, and that they meant to take military action." He also admitted that the "Servian Government could not swallow certain of the Austro-Hungarian demands." There is, therefore, every reason to believe that Austria neither wished nor intended her demands to be accepted, but was seeking for an occasion to attack Servia and destroy her independence.

A quarrel between Austria and Servia was no concern of ours, but, as Russia had told us that she would not allow Austria to crush Servia, we knew that, if war broke out, first Russia, then Germany, and, finally, France would be drawn in. Germany was fully aware of this danger, as, on July 24, we warned the German Ambassador that, if Austria invaded Servia, Russian opinion might demand that Russia should march to help Servia.

The moment Sir Edward Grey knew the contents of the Austrian Note he pressed Germany and Austria to extend the time limit, as such short notice gave no opportunity for considered action to prevent the outbreak of hostilities, but he met with no response from either Power.

Russia and Britain then exerted pressure on Servia to meet, so far as they could, Austria's demands, and the Servian Government, before the time limit had expired, sent an acceptance of the ten points, with certain reservations. They consented to dismiss and prosecute officers who could be clearly found guilty of the crime, they were prepared to hand over for trial any Servian subject of whose complicity proofs were forthcoming, they promised to condemn anything which might be said or written directly against Austria, and they undertook to take rigorous steps against all persons who interfered with the good relations between the two countries.

We represented to Germany that this reply involved a great humiliation to Servia, and that it would be very disappointing if it was treated by the Austrian Government as wholly unsatisfactory. But the Austrians did not accept it as satisfactory, and on July 27 we were told by our Ambassador at Vienna that Austria had "gone wild with joy" at the prospect of war with Servia.

Sir Edward Grey, having failed in his effort to secure an extension of the time limit, still endeavoured to secure peace by asking Germany, France, and Italy to join with us in mediating between Russia and Austria, and so preventing a war between these two countries. Italy and France welcomed the proposal, but Germany told us that they could not not fall in with the suggestion, and that it "was not practicable." Russia not only assented to this course, but promised not to move a single soldier towards the Austrian Frontier whilst any conference was proceeding, and they told us that they were "ready to accept the British proposal, or any other proposal of a kind that would bring about a favourable solution of the conflict."

On July 28 the Austrian Minister told our Ambassador that war would be declared that day. The German Chancellor also on that day told our Ambassador at Berlin that "he had not been able to accept the English proposal for a conference of representatives of the Great Powers because he did not think it would be effectual." And although he assured our Ambassador that "he was doing his very best to get the Russians and the Austrians to discuss the situation with each other in a friendly way," yet on the very same day we learned from St. Petersburg that the Austrian Government, no doubt with the approval of Germany, had declined direct conversations with Russia.

In spite of Germany having rejected his proposal for a conference of the Powers, Sir Edward Grey did not abandon his efforts for peace. He told the German Government that, if they would suggest *any* method by which the influence of the four Powers could be used together to prevent war between Austria and Russia, then France, Italy, and ourselves would be ready to accept it, and "in fact, mediation was ready to come into operation by any method that Germany thought possible if only Germany would 'press the button' in the interests of peace." To these suggestions no response whatever was made by Germany.

From the above record of facts it will be seen that every possible step was taken by the British Government to maintain peace and to prevent war breaking out between Russia and Austria, but the Germans persistently declined to help us. Moreover, the German Chancellor told our representative that the German Government had declared war against Russia because "they could not leave their country defenceless while time was being utilized by other Powers." It was the secret war preparations of Germany that really forced the Russians to mobilize their troops on her frontier and thus safeguard their territory against sudden invasion, but the moment Russia replied by taking steps in self-defence Germany declared war against her, knowing well that war with Russia meant war also with France. We now know that Germany for some time past had been carefully and deliberately making vast preparations for this war.

II. Germany and Belgium.

By a treaty made in 1839, England, France, and Germany agreed that they would never march their armies into Belgium, unless Belgium called upon them to protect her. When we saw that war between Germany and France was inevitable we asked both nations whether they would observe this Treaty in the same way as they did during the Franco-German War of 1870. We were assured by France that she would not violate Belgian territory, but Germany declined to give us any such assurance, and proceeded to send her troops first into Luxemburg and then into Belgium in defiance of her Treaty obligations.

Germany, by thus disregarding her Treaty obligations and overrunning a small State with a view to invading France more easily, not only broke her word, but made it obvious that if she could overpower Belgium she would be able to destroy the independence of other small States (Holland and Denmark) and would be able to obtain control of the Northern Coasts of France. From that position she would be able to threaten our control over the English Channel, upon which we rely for the food materials necessary for our population which come over the seas into the great Port of London. Germany by a triumph over Belgium would thus secure for herself a position from which she hoped to become the predominant Power in Europe.

On August 4 our Ambassador once again urged the German Government not to violate Belgian neutrality,* but he received the reply that the German Government "had to advance into France by the quickest and easiest way so as to strike some decisive blow as early as possible," and when the German Secretary of State was asked by our Ambassador whether there was not still time to draw back, he replied, "It is impossible." We pointed out that, by Treaty, the Germans were a party to the neutrality of Belgium, as much as for ourselves, and we were then told that we were going to war "just for a scrap of paper." Our Ambassador replied: "It is a matter of life and death for the honour of Great Britain that she should keep her solemn engagement to do her utmost to defend Belgium's neutrality if attacked." When our Ambassador said that he must leave Berlin that night if the German Government could not give a satisfactory answer to our request that they would avoid invading Belgium, the Under-Secretary of State replied that his Government "could not possibly give that assurance either that night or any other night."

We have, therefore, gone to war with Germany not merely to protect our own interests or to support France when the Germans are striving to crush her, but because when we undertake to safeguard

* Parliamentary Paper Miscellaneous, No. 8 (1914).

the integrity of a small State we are bound in honour to keep our word. We are fighting for the independence of Belgium against the domination of a great military power. We stand for the freedom of nations and the sanctity of treaties against militarism and military aggression. We did our utmost to preserve peace, but war was forced upon us, and it is the German Emperor and his Government who are alone responsible for all the waste of resources, the devastation of property, the untold suffering and misery, and the frightful sacrifice of human life.

EXERCISES FOR TEACHERS AND OTHERS.

By Eustace Miles, M.A.

II.

In the first article (in *The Educational Times* of October) I pointed out that the sedentary life as a factor of modern times demands a different set of exercises from the life which our fathers and grandfathers used to live, with plenty of physical movement and open air, and with much less sitting, and much less tendency for the organs to "sag" down. I advised the practice of deep and full breathing, starting with the abdominal (or forward and downward) expansion, to be done as the person lies in bed in the morning, and last thing at night. I advised also the early morning walk, or alternate walk and run, with breathing exercises during the walk. Then, after the walk, a good wash and skin drill, and perhaps the rubbing of a little oil into the skin after drying.

In this article I want to say something with regard to the position of the body. It is a matter of far greater importance than most educational authorities have realized. Hitherto they have confined their attention largely to the mind, especially the intellect, and have not remembered (or have not known) that when the body is in a wrong position the mind cannot function satisfactorily.

I remember a devout Hindu once telling me that he never began his spiritual exercises until he had done some physical exercises, to get his body into the right position and to get his breathing into the right rhythm. In order to get his body into the right position, one of his practices was to bend well back and straight (not to one side or the other), and to stretch thoroughly. He explained to me, as Vivekânanda does in his celebrated book, "Raja Yoga," that the straightness of the spine laterally was of enormous importance before breathing exercises were begun. Having straightened his spine by stretching, he then proceeded to inhale through one nostril, holding one of his fingers against the side of his nose, so as to block the other nostril, and then inhale through the other nostril, and then *vice versa*. It has been proved that regularly we inhale through one nostril more than the other alternately for certain periods throughout a day. Sometimes it is one nostril, sometimes the other.

It is impossible in a short article to give full details about the correct position of the body, but it is perfectly clear that many, if not most, people, need some instructions, and here are a few which are practical, though, if one had more space, one could easily improve upon them. Before beginning, however, it would be as well to realize the advantages of the different practices. The reader should realize the advantages to his appearance, his health, and his efficiency, as well as his enjoyment of life. The former exercises should not be discontinued, but the new ones should be added to them.

Keep your spine straight laterally, and stand with the feet not in the stiff old-fashioned way, but comfortably apart. Let the weight come chiefly on the balls of the feet, not on the heels. Now gently stretch the trunk well back from the hips, but do not strain, and stretch the head well back also. Do this quite slowly. Nearly all head movements should at first be slow and deliberate. Keep in this position for a moment or two. In our Physical School we generally insist on people holding an extreme position for a few seconds at least. This stretching has a wonderful effect, not only on the circulation, but on the lifting up of the stomach and other organs of the body into their right positions, and also on the mind.

One professional teaches stretching exercises at a very high fee. Stretching exercises are useful, but they are not the whole of the physical culture; they are only a part of it. They counteract some of the bad effects of the wrong way of sitting.

Now for an enlargement upon this. When the exercise has been done once or twice, followed by muscular relaxing, instead of keeping the hands down by the sides relaxed, as you should in the first exercise, keep one hand down by your side relaxed, but send your other hand up in front of you, and above you, with the fingers extended somewhat like a starfish and stretched well back. When the hand of the stiff arm has been raised high above the head, then still keep the arm stiff, and rotate the hand round, first to the right as far as it will go, then to the left as far as it will go. Do not hurry. Then lower this hand and relax it, and do the exercise with the other hand.

Another exercise is to stretch the feet and legs well out, each in turn. Take the right foot and leg first. Stretch the foot as far away from you as it will go, with the toes as far away as they will go. Be sure to keep the leg stiff and the knee well back. Hold this position for a minute or two until you begin to feel an aching; then, keeping the leg stiff, force the heel as far away from you as possible, and hold that position. Repeat this a few times; then shake the leg and foot, and do the exercise with the other foot and leg.

With regard to breathing, here is an exercise which can follow on the one suggested in the previous number. In the same position—namely, on the back—inhale in the same way as before, and this time hold the breath in a very considerable number of seconds, but do not strain. When you have let this breath out quietly and slowly, inhale again as before, hold the breath in (or do not let it out), and, while you hold it in, contract the muscles of the abdomen, pressing the abdomen with your hands; then let the muscles come out again. Repeat this a few times so as to make the air which you have inhaled circulate in your lungs. Then, if there is any air left, let it out again quietly and as thoroughly as possible.

Do not grudge the time for these exercises. Remember that breathing, in particular, you can turn into a habit, so that you have no longer to think of it or devote special time to it. The same applies to the position of the body. Get it right and it will keep itself right. This is why such exercises as breathing and stretching are so much more important for most of us than walking is; for it is not always possible to get the time for a walk, and, if you want to walk, you must walk. The mere fact that you have walked five miles every day for two years does not make you walk five miles to-day. If you want to walk to-day, you must walk to-day. Whereas, if you have acquired, by constant and conscious practice, the right way of breathing and the right position of the body, the lungs continue to breathe rightly and the organs to retain their positions to-day without further practice.

If you like, with the breathing you could use certain forms of self-suggestion. It is an old Hindu practice, with the inhaling, to imagine that one is inhaling energy with the oxygen, and, with the exhaling, to imagine that one is exhaling things such as worry; but one should not mention any of these undesirable things definitely by name. Above all, regard physical culture as mental and moral, no less than physical, culture. Physical culture of the right sort should be a training in concentration, in leisureliness, and in the art of not attending to things which would otherwise distract the mind.

In the next number I shall give several more hints on muscular relaxing and on skipping. I should be glad of any criticisms or suggestions which any readers care to offer.

(*To be continued.*)

THE COLLEGE OF PRECEPTORS

PRACTICAL EXAMINATION FOR CERTIFICATES OF ABILITY TO TEACH.

The following is a list of the successful candidates at the Examination held in October 1914:—

Class I.

Whitfield, T. F.

Class II.

Jones, Miss M. E. Morris, J. V.

THE FOUNDATIONS OF CHRISTIAN EDUCATION.*

Translated by S. E. Howe.

At a time when positive Christianity is looked upon by many cultured people as out of date, it is a joy to me as a modern man and as a modern educationist to testify to this selfsame Christianity. I bear witness to the fact that the modern educationist especially must, the more earnestly he studies the problem of character-training, arrive at the conclusion that "other foundation can no man lay than that is laid, which is Jesus Christ."

Permit me to make one more personal remark. It may surprise you that, in spite of our oneness of Christian principle, I may use a terminology differing from the one to which you are accustomed. Please bear in mind that I have arrived at the truth of the Christian Faith by a different route from most of you. I have come out of utter paganism and, therefore, it is only natural that the Christianity which appealed to me was that of the early Fathers, who had themselves come out of paganism, and to whom Christian truth was the fulfilment of the best pagan thought. It was not until much later that I came to appreciate the evangelical school of thought. However, I do not speak as a theologian, but touch on religious dogmas only in so far as they concern the problems of education. I speak as a modern man, who began his study of education in a spirit antagonistic to Christianity, but this very study was the means of my accepting the Christian faith. St. Augustine, in his "Confessions," describes the decisive moment of his conversion in the following words:—"Then, for the first time, I looked into myself." Such looking into oneself and the turning to the actualities of life will, to-day also, lead many away from abstract negations and back to the living truth of Christianity. To return to life is to return to Christ, and in turning to Christ there is return to life.

I give the more hearty welcome to the movement for the preservation of Christian schools (in Germany) because I am convinced that the overcrowded curriculum of the modern school needs the counterbalance of an active religious faith, if it is not to lead to spiritual disintegration. I do not wish to imply that there should be any compulsion, but only that Christian parents should be fully assured of a definitely Christian basis for the intellectual culture of their children. Experience shows that one-sidedness in mental work and a multiplicity of divergent intellectual stimuli act destructively unless they are safeguarded by the soul-quickening and unifying power of religion. Pestalozzi says concerning this, "that he who knows much is in even greater need than others, of training of his powers towards concentration, otherwise his knowledge will become a will-o'-the-wisp, leading him on to destruction." Comenius was, perhaps, of all educationists the one to realize most deeply the necessity for concentration of the soul upon one supreme truth, thus preventing man from losing himself in a maze of multiplicity of attractions. His book, "The Labyrinth of Life," describes this entanglement of human efforts and interests, while his principal work bears the title "Unum est necessarium." It is in the latter book, especially, that we feel how thoroughly convinced he was of the fact that, in order to safeguard youth from the dissipation of strength, the Christian educationist must also be a spiritual organizer. He will succeed in this only by putting first things first, by keeping secondary matters in their right place, by eliminating what is unnecessary, and by subordinating all purposes of life to one supreme good. One can safely say, in this sense, that true education is the art of distinguishing what is of primary and what is of secondary importance, while character is the power by which these distinctions are worked out in practical life.

In order to illuminate the *esse* of Christian education in contrast to all systems in which Christ is left out, I purpose to point out two fundamental postulates of all effective training, and then to compare the forces of Christianity with those of modern theories as to their relative efficacy. First, the teacher should always have a steadfast, definite, and universal ideal of education; secondly, the teacher should not only be an idealist, but also a realist; he must have a practical knowledge of the material he works upon—human nature—so as to adapt his methods and means of training to the actual demands of mankind.

Some of the old masters depicted on their frescoes a state of liberty and blessedness not of this world. But they were only able to paint thus because, having beheld these conditions with the eye of faith, they had actually been transported into them by prayer. We marvel at the brilliance of colour of these pictures painted some five or six centuries ago. The reason for this is, that not only had they seen heavenly visions, but they had also carefully studied the material by which to express what they had seen. This union of idealism and realism is, to me, an explanation and a parable of the power exercised by all personalities which deeply influence life.

The incomparable power of Christianity (defined purely from the educational point of view) rests on the fact that its Founder, besides possessing the knowledge of eternal truth, also understood actual life and human nature. Napoleon, when asked why he did not found a new religion, replied: "For that one must pass through a Golgotha, and that I cannot do." And, indeed—only He who has experienced the whole tragedy of life to its very depths, who has faced the powers of darkness, and yet stands above them in unassailable liberty—He only can give us a doctrine which, while it takes account of life, is yet able to show a point of view beyond this life. The educationist realizes this truth, especially when dealing with broken lives. He then learns how Christ speaks to people who will not listen to anyone else: it is He only who really knows how to deal with them in matters of their inner personality. He descends into their lowest hell, and yet understands how to value their secret aspirations. We are reminded of the expression used by Thomas à Kempis when he makes Christ say: "I am the Infinitely High and the Infinitely Nigh." We realize the ineffectiveness of human efforts when these are replaced by a higher power. And herein lies the strength of all great Christian teachers—their words are aglow with heavenly assurance, as well as with the experience of sin and suffering, since they have fought out in themselves the realities of existence. Think of Luther and how intensely real were to him the tragedy of sin and the power of the evil spirits—so tangible were they as to make him throw his inkpot at the devil! That ink-spot in Luther's room at the Wartburg always makes me wonder whether it is possible to picture anyone to-day doing the same thing. Somehow, we cannot imagine it. We feel that modern man lacks such strength of conviction in regard to the decisive realities of life. He does not understand all that the Christian doctrine of original sin contains of knowledge of life and understanding of the soul, and, therefore, all he writes about human nature and its treatment remains nothing but ink: it has not been permeated with the experience of human tragedy and suffering, and so has no power to lift man above them.

Let us now consider more particularly the cardinal conditions of effective education mentioned above, and examine the attitude of the different schools of thought toward these. The first condition, then, is to have a steadfast, definite, and universal idea of education. What is the modern teacher's position with regard to a steadfast ideal? For many modern people morality is only the product of the times and doomed to change with them. The young man to whom such relative ethics are presented, feels their unsatisfying transitoriness. He realizes that it is quite impossible to educate himself or others merely with the question: "What is truth?" He says to himself: "Why should I conquer my passions and desires, if to-day there is one code of morality, and to-morrow a new one? For the sake of a mere hypothesis, I do not care to make sacrifices."

* A lecture delivered by Prof. F. W. Förster, of Vienna, at the Eighteenth German Evangelical Educational Congress held at Cassel, 1913.

It is just here that Christ comes in with the firm assurance expressed in His words: "Heaven and earth shall pass away, but my words shall not pass away." For the soul has always longed for the possession of truth which cannot be touched by time, and we find this longing typified in the Egyptian Pyramids, speaking, as they do, of the dim groping after an immovable foundation in the midst of the drifting sands of life and time. In Christ all this longing is satisfied, and therefore character reaches out from its instinctive vitality towards Christian truth: for the forming of character implies the union of time and eternity, of the transient and the permanent. True character-training is the triumph of the absolute over the relative, of the categorical over the hypothetical, and the vital mistake made by so many modern educationists, consists in their failure to recognize the impossibility of delivering others from chaos, before they themselves have been brought from the shifting quicksands on to the solid rock. He who believes that he can train character with his human hypothesis has no notion of the *esse* and the fundamentals of education.

Heine is said to have expressed himself thus, while looking at Antwerp Cathedral: "These people had dogmas—we have only opinions; opinions will not build cathedrals." I should like to apply this to the building up of character; for human character is like a Gothic dome, leading the soul skywards out of the narrow paths of egoism. However, such lofty structures in the soul cannot be raised by mere opinions and subjective impulses; it requires absolutely firm and immovable truth.

There are people who imagine that they do not need for their life's voyage a lighthouse erected high above the foam of the waves. They think it sufficient to carry a small oil-lamp in their boat, and if, perchance, the sea is smooth, they may reach the other side without an accident; but this disregard of the means of safety must revenge itself on their children later on. Let there be but one big breaker, and the children will be dashed on to the rocks.

It is just this fact which so many people, estranged from religion, overlook. They do not realize how much their own conscience is still influenced by the religious stability of moral truth which they had imbibed in their youth. They do not ask themselves from whence strength of character is to come to the younger generation, if behind the ethical command stands only a chance mortal, whose individualistic ethics are, in their turn, contested by other individuals.

The French philosopher, Fouillet, tells us that in France nearly every elementary-school master teaches his own ethics. We find this chaos especially in the realm of sex morality. There is a modern school of thought which has produced copious literature on sex education, but it has forgotten the fact that a really invigorating education in this respect must be based on absolutely pure and firm principles. But, unfortunately, modern man lacks this firmness of conviction. Instead of letting the spirit dictate to the flesh, natural weakness is made to serve as a foundation of a new philosophy of sex. A peculiar attitude of the present day shows itself in the fact that the ten frailties of his moral character are turned by man into ten laws of a new code of ethics. This change of value reminds us of the song of the witches in "Macbeth": "Fair is foul, and foul is fair." We might ask, if such chaos is allowed to reign, then of what use are the most perfect systems of sex-training? It would be more consistent not to give such training at all, but rather to offer to a young man at each period of his development the choice of the various theories of reform in vogue.

(*To be continued.*)

THE COLLEGE OF PRECEPTORS.

MEETINGS OF THE COUNCIL.

A MEETING of the Council was held at the College of Preceptors, Bloomsbury Square, W.C., on September 26. Present: The Rev. Dr. Scott, Vice-President, in the chair; the Dean, the Treasurer, Prof. Adams, Mr. Bain, Mr. Barlet, Mr. R. F. Charles, Miss Dawes, Mr. Eagles, Mrs. Felkin, Mr. Hawe, Miss Jebb, Miss Lawford, the Rev. R. Lee, Mr. Longsdon, Mr. Maxwell, Mr. Pendlebury, Miss Punnett, Mr. Rawlinson, the Rev. C. J. Smith, Mr. Starbuck, Mr. Thornton, the Rev. J. Twentyman, Mr. Vincent, Mr. White, and Mr. Wilson.

The Secretary reported that the Examination of Teachers for the Diplomas of Licentiate and Associate of the College was held on August 31 to September 5 in London and at eleven provincial and six Colonial and Indian centres, and that the total number of candidates examined was 169—128 men and 41 women.

He reported that the Professional Preliminary Examination was held on September 8, 9, and 10 in London and at eleven provincial centres, and that the total number of candidates examined was 274.

He reported that the Examination which was conducted by the College on behalf of the Newfoundland Council of Higher Education was held at 158 centres on June 22 to 27, and that the total number of candidates examined was 2,944—viz., 100 for the Associate Grade, 590 for the Intermediate Grade, 1,079 for the Preliminary Grade, and 1,175 for the Primary Grade.

The Diploma of Associate was granted to Miss Dorothy Belle Thurston, who had satisfied the prescribed conditions.

On the recommendation of the House Committee, the Council decided, in view of the national situation, to cancel for the present the arrangements for Members' Meetings and for a Members' Dinner during the coming session.

A grant of £20 from the College Benevolent Fund was made to a Member of the College, and a grant of £10 to the widow of a former Member.

The following persons were elected Members of the College:—

Miss T. E. Foster, 8 Cranfield Road, Brockley, S.E.
Mr. R. A. Johnston, A.C.P., The Beeches, Moy, co. Tyrone.
Miss M. Murphy, A.C.P., 34 Livingstone Place, Galashiels.

The following books had been presented to the College Library since the last meeting of the Council:—

By Mr. R. F. CHARLES.—Charles's Gray's English Poems.
By Mrs. GARROD.—Garrod's Dante; Goethe's Faust; and other Lectures.
By G. BELL & SONS.—Guest's Constitutional History of England; Ryle's Olim.
By A. & C. BLACK.—Barnard's Outlines of Physical Geography; Reynolds's The Americas (Junior Regional Geography).
By BLACKIE & SON.—Blackie's Large Type Poetry Books (Junior, Intermediate, and Senior); Norman and Robert-Dumas' Lenotre's Légendes de Noël; Smith's Birds and their Ways.
By the CAMBRIDGE UNIVERSITY PRESS.—Murison's Précis Writing, Parts I, II, and III.
By HARRAP & CO.—Brown and Johnson's Home of Man, Part III (America); Coles's Home of Man, Part IV (Asia).
By MILLS & BOON.—Ball and Smith's Shakespeare's Merchant of Venice; Baron's Hugo's Bug Jargal; Gilbert's Notes on St. Matthew; Goddard's First School Botany; Hirsch's Hoffmann's Meister Martin; Walters's Reform First French Book.
By J. MURRAY.—Proceedings of the Classical Association, January, 1914.
By the OXFORD UNIVERSITY PRESS.—Matthew Arnold's Essays; Atkinson's Macaulay's Frederick the Great; Cavenagh's Landor's Imaginary Conversations, and Smith's Dreamthorp; Chignell and Paterson's Arithmetic, Parts I and II; Hughes's Tennyson's Poems published in 1842; Maxwell's Macaulay's Life of Bunyan; Macaulay's Frederick the Great; Paterson and Taylor's Elementary Geometry, Vol. I; Pearce's Ovid's Elegiac Poems (3 vols.); Rice Holmes's Caesar's Gallic War, Books I-VII; Robertson's Keats's Hyperion; Sacret's Bourbon and Vasa; Wheeler's Macaulay's Life of Goldsmith.
By RIVINGTONS.—Bell's Geography; Robinson's Short British History to 1603; Twentyman's Middle School English Composition.
By the UNIVERSITY TUTORIAL PRESS.—Chaytor's Direct German Course; Elliott and Elliott's Preliminary History of England; Penn's Caesar's Gallic War, Books II and III; Richardson's Virgil's Aeneid, IX; Valentine's Introduction to Experimental Psychology.
Calendar of Glasgow University.
Calendar of St. Andrews University.
Calendar of Edinburgh University.
Calendar of the National University of Ireland.
Calendar of the University of Manitoba.
Calendar of the University College, Cork.
Calendar of Birkbeck College.
Calendar of the Royal College of Surgeons of England.
Calendar of the Royal Veterinary College.
N.U.T. Report, 1914.

A MEETING of the Council was held at the College, Bloomsbury Square, W.C., on October 24. Present: Sir Philip Magnus, President, in the chair; Prof. Adams, Dr. G. Armitage-Smith, Mr. Bain, Mr. Barlet, the Rev. J. O. Bevan, the Rev. J. B. Blomfield, Mr. F. Charles, Mr. R. F. Charles, Miss Dawes, Mr. Eagles, Mrs. Felkin, Mr. Hay, Miss Jebb, Miss Lawford, Mr. Maxwell, Miss Punnett, Mr. Ritchie, Mr. Rushbrooke, Dr. Sibly, Mr. Starbuck, Mr. Storr, Mr. Thornton, and Mr. Wilson.

Diplomas were granted to the successful candidates at the recent Summer Examination of Teachers. (For list, see page 494.)

The House Committee was authorized to arrange for the delivery of lectures dealing with the origin and causes of the present War.

Mr. R. F. Cholmeley was re-elected a member of the Council.

The following persons were elected members of the College :—

Mr. H. E. Hawtin, M.A., L.C.P., Cotteswold, New Road, Windsor.

Mr. J. B. Liverpool, A.C P., Ahoada, S. Nigeria.

The following books had been presented to the Library since the last meeting of the Council :—

By MACMILLAN & Co.—Madeley's Noctes Latinae; Whitton's First Book of Chemistry.

By METHUEN & Co.—Dearmer's Child's Life of Christ.

By MILLS & BOON.—Stanley's Outlines of Applied Physics; Walker's Examples and Test Papers in Algebra, Parts II and III.

By the UNIVERSITY TUTORIAL PRESS.—London Matriculation Directory, September 1914; Briggs's Economic History; Roberts and Chaytor's Second Year Direct French Course.

Calendar of the University of Birmingham.
Calendar of the University of Bristol.
Calendar of the University of Leeds.
Calendar of the University of Liverpool.
Calendar of the University College, London.
Calendar of the London School of Economics and Political Science.
Incorporated Accountants' Yearbook.

PRIZE COMPETITION.

PRIZES are offered each month for the best replies to the subject set. Competitors may, if they wish, adopt a *nom de guerre*, but the name and address of winners will be published. Competitions, written on one side of the paper only, should be addressed to the Editor of *The Educational Times*, 6 Claremont Gardens, Surbiton, and should reach him not later than the 15th of the month. As a rule competitions should be quite short, from 100 to 500 words.

The first prize will consist of half a guinea; the second prize of a year's free subscription to *The Educational Times*. It is within the discretion of the Editor to award more than one first prize, or more than one second prize.

SUBJECT FOR OCTOBER.

The best retort by a teacher to a pupil who has tried to "score off" him.

There has not been a very large field in this competition. Perhaps our readers find a difficulty in remembering their dialectic triumphs. They all feel so satisfactory as they occur, but somehow when reduced to the plain black and white of cold prose they lack some of the brilliancy that the occasion lent them. It is more than likely that many a reader sat down with a cheerful recollection of rather a brilliant score, and got up with the conviction that it was not really so glittering after all. But no one need be discouraged at this dimming of brilliancy after the event. A retort owes its value to the effect it produces in the circumstances under which it is given. Many a really excellent repartee will not bear repetition for the plain reason that we cannot revive with it the occasion that gave it its power. One competitor ventures on a remonstrance. She is anxious to avoid ever hurting the feelings of a sensitive child. But she does not give sufficient weight to the conditions of the case. It is assumed that the pupil has on his part done his best to hurt the sensitive feelings of the teacher. Most of our professional brethren can remember many cases when they have felt that the only thing that prevented them from injuring the feelings of an impudent pupil was the lack of inspiration to say something that would be hard enough. However, we respect the protest, and as a sort of solatium we present to the protestant Suggestion 22 in Mr. Charles A. McMurry's "Suggestions on Management." It runs : "Competing with children in smartness is not worthy of a teacher."

The following is, in our opinion, the best of the retorts sent in :

My procedure, rarely broken, is a test on the Latin author one week, followed by a paper on prose composition the next. On one occasion the author was badly done by all, and as I suspected neglect, there were winged words to individuals. The next week, instead of prose as usual I set the same passage from the author again. The boy who had experienced the roughest ride on the previous occasion called out :

"Please, sir, we had Cicero last week."

I immediately replied : "No, sir! Last week Cicero had you."

What spoils one's enthusiasm for this retort is that it was hardly worked for by the boy. His remark was innocent enough. We have no doubt, however, that the master could assure us that if we had heard the tone of voice in which the boy spoke we should be in no doubt about the intention to score.

There was distinct malice in the case of the boy who asked one of the competitors "How long can a man live without brains?" The retort, which the competitor is careful to explain is not original, was the counter question : "How long have you lived, Thompson?" This is the kind of question for which every experienced teacher is always ready. Anything containing a reference to ass, or donkey, or goose, or brains is safer to be left unanswered. They are the time-honoured material of the intellectually bankrupt.

One competitor submits a simple little repartee that has all the air of really having been given. A girl who has failed to pass in junior French at a certain general examination preferred to stay in the junior class instead of advancing with her fellows to the next higher class. At the first examination of the class she stood at the top. To depreciate the merit of this performance the other girls complained to the teacher, "She *ought* to be top." The not too strenuous retort was "Yes, quite right, she *did*, but she *is*. Vy you grumble, vot is wrong? She *is* top."

A correspondent writes that he does not wish to be regarded as a competitor, but submits a case for the authenticity of which he can vouch. In a fifth form the master had been making some reference to the *dativus ethicus*, and after explaining what underlay the term he asked a hulking ill-conditioned fellow for an example of the use of this form of the dative. The pupil raised the smile he expected when he supplied : "This woman is dear to me," but the smile broadened into a general grin when the master quietly asked : "With whom did the disadvantage lie, with you or with the woman?"

One example is disqualified by its extreme length and obscurity. Cut down to workable limits it might run : The master in a perspective lesson asked a careless pupil to point out the C.V. (Centre of Vision) on an unlettered diagram on the board. The pupil carelessly indicated a point at the side that was in reality a D.P. (Distance Point). "Think," exclaimed the teacher, "is that your C.V.?" "Yes," replied the boy defiantly. "Then," replied the teacher, "you must have a ghastly squint."

A half-guinea prize is awarded to Mr. Leonard C. Miller, B.A., Breamore Lodge, Marlborough, and a second prize to Mr. G. Kitching, Allenby House, Burton Road, Derby.

The winner of last month's competition ("Aberdonensis") is Miss M. M'Combie, The Training College, Darlington.

As the Editor is anxious to make these competitions appeal to as many of his readers as possible, he wishes to get suggestions about the kind of subjects that are most attractive to subscribers and others. The number of answers sent in each month fluctuates in a way that it is difficult to explain. We shall, therefore, welcome suggestions from readers about desirable subjects, and to this end we make the next competition bear upon this matter. It may be worth adding that, if any reader has certain suggestions he would like to make, but does not want to compete or have his or her name published, the Editor will be very glad to consider such suggestions as purely private matters and make no mention of the writers by name.

SUBJECT FOR NOVEMBER.

The best suggestion for a subject or subjects of competition.

1914.

THE COLLEGE OF PRECEPTORS

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ON THE

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PROBLEMS IN SCHOOL PRACTICE.

To be delivered by Professor J. ADAMS, M.A., B.Sc., LL.D., F.C.P., Professor of Education in the University of London.

The Second Course of Lectures (Forty-second Annual Series) commenced on Thursday, October 1, at 7 p.m.

The purpose of the course is to present the principles of teaching practice in the way most suited to their application to the ordinary work of a school. In the ultimate resort every teacher must apply for himself the principles of his profession, but he may be greatly helped by observing how others have dealt with the problems he must face. To this end the lectures will be very copiously illustrated by references to the teaching of the various subjects of the ordinary school course, while particular attention will be given to those subjects that must be taught by all teachers who are not specialists. The lecturer will base his suggestions on the state of things actually existing in the schools of the present day.

SYLLABUS.

I. (*Oct.* 1.) *The Teacher's Self-Appraisement.*—Need for and danger of mental stock-taking by the teacher: qualities of the ideal teacher: co-efficients of the teacher's powers: how to make the best of the qualities actually possessed: manipulation of the pupils' estimate of the teacher: source of the teacher's authority: modesty and its dangers: sincerity and its implications: the teacher as actor: imposition of teacher's character upon the pupils: precept and example.

II. (*Oct.* 8.) *The Natural History of the Pupil.*—Child-study and its dangers: the living pupil here and now before the teacher: the "average" child, and the type: the "human" boy (and girl) as pupil: relation of age to development: description of various types of troublesome pupils: dullness and its manipulation: artificial stupidity: tests of intelligence: the precocious pupil and his treatment: aids towards putting ourselves in the mental attitude of our pupils: the "little man" fallacy.

III. (*Oct.* 15.) *Place and Function of Class Instruction.*—Class instruction always a compromise: an economic necessity: Dr. Montessori's views on the use of the class in instruction: advantages enjoyed by the private coach: compensations of the class teacher in respect of (*a*) mere instruction, and (*b*) real education: psychological nature of the class: general influence of collective psychology in modifying class management: what is implied in the *size* of a class: attempts of MacMunn and others to combine the advantages of class and individual instruction.

IV. (*Oct.* 22.) *Administrative Limitations of the Teacher's Freedom.*—His many masters: regulations of the Board of Education and of the Local Authorities and School Governors: Syllabuses, Time-Tables, Schemes of work: margin of liberty: too common lack of willingness to accept what liberty is left: the official mind and its manipulation: an instructive bit of law: the official art of compromise: the art of interpreting regulations: the manipulation of conflicting regulations: the teacher as himself an official: the teacher as diplomat.

V. (*Oct.* 29.) *Free Discipline.*—Very practical nature of the problem involved: Montessori System only one form in which it appears: Tolstoi's anarchic school at Yasnaya Polyana: the spirit of the age: two contrasted ideals—self-realisation and self-expression: freedom *versus* caprice: self-imposed restrictions implied in real freedom: correlative increase of freedom and restrictions: internal and external control: freedom and self-control: reconciliation of opposite controls by reference to the invisible and invariable third.

VI. (*Nov.* 5.) *Newer Methods of Teaching.*—General advance in effectiveness of method: accompanying development of professional conscience: danger of falling behind the times: relation of theory to method: relation of theory to experience: danger of excess of theory and of lack of theory: the doctrinaire and the empiric: the pedagogic type of mind and its dangers: means of keeping in touch with the newer educational developments: attitude to be adopted towards "fads" in education: need for certain fixed canons in educational criticism: the development of an objective standard.

VII. (*Nov.* 12.) *School Books.*—The economic aspect: popular criticism of the teacher's attitude: the ownership of such books both in economic and educational aspects: danger of the school book usurping the teacher's place, parental criticisms on this matter school stationery and its dangers: paper, print, binding, and illustrations of school books: hygienic considerations: pupils as makers of school books: advantages and dangers of note-taking by pupils: different editions of school books and consequent complications.

VIII. (*Nov.* 19.) *Use of Libraries in School.*—Nature and function of school library: the economic aspect and the educational: differences between class library and school library: preliminary training of the pupils in the mere handling of books as books: the æsthetic and the didactic aims of book-using, and the correlation of these aims: special use of the reference library: rudimentary research: manipulation of catalogues and indexes: bibliographies and their uses: the best use of external libraries, particularly the ordinary public library.

IX. (*Nov.* 26.) *Written Exercises and their Correction.*—Need for a great deal of written work in school: yet certain experiments in Illinois prove possibility of excess: relation between form and matter: "having something to say and having to say something": present quarrel among teachers in America: every written exercise should be regarded as an exercise in composition and marked as such: teachers of other subjects must make themselves responsible for the correction of the English of their pupils: danger of wasting time in over-refined correction: need for conventionalised contractions: burden of actual *correction* to be thrown upon the pupil: teacher to limit himself to marking.

X. (*Dec.* 3.) *Specialisation.*—Modern tendency towards specialisation even in elementary schools: occasional confusion between pupil-specialisation and teacher-specialisation: time-table difficulties involved when specialist staff is employed: consequent modification of organisation: advantages of the specialist system: possible dangers: the German *ordinarius* and the English Form-Master with the correlative kinds of school organisation: stages at which the Form system and the Specialist system each does its best work: possibility of an effective combination of the two.

XI. (*Dec.* 10.) *Experiment in School Work.*—Every intelligent teacher is experimenting all the time: clear distinction between *experience* and *experiment*: increase in deliberate experimenting of late years: justification of the suspicion the public shows of school experiments: the brass instrument experiment: motives of the experimenters: possibility of combining the advancement of the study of education with the promotion of the highest good of the individuals experimented upon: experimental pedagogy and its literature: need for "control" in school experiments: effect of experiment in increasing interest in school work.

XII. (*Dec.* 17.) *Testing the Results of Teaching.*—Contrast of inspection and examination: difference between testing *final* results and intermediate results: two forms in which examination is carried on (*a*) to test by means of reproduction, (*b*) to test by means of intelligent application of knowledge acquired: internal and external examinations: the teacher as examiner: how to draw up an examination paper: how to mark the worked papers: numerical *versus* literal marks: how to secure uniformity of standard: how to prepare pupils for an external examination with the minimum amount of injury to themselves.

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SANE SEX TEACHING.

VII.—EDUCATION FOR PARENTHOOD.*

By C. W. SALEEBY, M.D., F.R.S.E.

IF the principle laid down in the previous article be accepted, our sane sex teaching is to be in spirit and purpose none other than education for parenthood, or eugenic education. Here we may note some of the details which may perhaps, be usefully considered.

There is the matter of vocabulary. Many who could proceed with a suitable apparatus of language are hampered by the associations which have attached themselves to certain words which are innocent in themselves. The point may seem trivial, but experience shows that it is not so. For instance, if parents or other persons should object to the term "sexual," there is another obvious reason, besides the deeper one already discussed, for preferring the term "racial instinct" to that which is more familiar. Similarly, the word "parenthood" may always be used in place of "reproduction." Above all, some one whose name I have long been publicly inquiring has given us the beautiful term "expectant mother," which we can always, and should always, use instead of "pregnant woman." It is a poor teacher, and a worthless child, who cannot between them impart and acquire a sense of reverence and responsibility for the expectant mother as a sacred being, to care for and value whom is the first duty of civilization. Happy the child whom such ideas reach before the mind has been polluted with the vulgar estimates of these holy things.

Self-control, not in order to stifle and strangle any part of the self, but for the future use and value of the whole, is, of course, the key of eugenic education. Physiology speaks of this process as inhibition, and neurology regards it as the

* Previous articles in this Series have appeared in the April, May, June, August, September, and October numbers.

highest attribute of the nervous system. "Last to come, first to go," is the great principle laid down by the late Dr. Hughlings Jackson when he discerned the hierarchical structure of our nervous organization. Last of all to come is inhibition, the guidance, the mastery, which are the real will of man. Adolescence is a double crisis, the emergence of new powers, and the requirement that they shall be controlled. To "be a man" is therefore to attain mastery of the whole self, not of the "beast" beneath, for it is not bestial at all—call nothing natural common or unclean, least of all when it is a condition of the future of our race—but of powers which must not be allowed to run away with the real man, last product of evolution, who is seated upon them. Each of us is a Centaur, and inhibition is the rein upon the splendid animal without whom we could go nowhere and effect nothing—the whole physiological apparatus and psychological appanage of instincts and emotions which the highest self controls, and, controlling, guides.

The ideal thus laid before the youth is not negative nor ascetic. It is self-mastery for self-realization, and, in the particular respect now under consideration, for the exalted function of parenthood. No better criterion of the real status of the human being is to be found, we must teach, than here. The children of the lower races, we know, are as bright and charming as any. At adolescence, however, the Kaffir child that was such a delight tends, especially if it be male, to degenerate, becoming too often a creature of sex. That is the testimony of Mr. Dudley Kidd in his admirable study of "Kaffir Childhood," and Dr. Havelock Ellis and others have hinted that this tendency to degenerate, associated closely with the powers of sex, is indicated also by the normal appearance at puberty, notably in the male, of such reversionary characters as the growth of the beard and the development in the skull of the frontal air-spaces above the eyes. But the business of those who would attain the highest of which mankind is yet capable will be to decline to degenerate at puberty, but to go on ascending, and to this end the self-control of the racial functions is essential. That effected, those very functions will prove to be the sources of many forms of physical and psychical power, splendid and valuable.

Such I believe to be the scientific truths, and I cannot doubt that they are capable of lucid and convincing presentation to young people of both sexes. Here is no cant, no appeal to anything unreal or visionary, but an argument based on what Wordsworth called the "solid ground of Nature."

If self-control during adolescence be cardinal for the completeness and happiness of the future, whatever strikes at such self-control is an enemy. Let it be here noted, and never forgotten, as a fact overwhelmingly proved, that alcohol is such a substance. Notwithstanding the grave words of Dr. Clement Dukes, formerly physician to Rugby School and author of the standard work on "Health at School," some of our young people are still offered alcohol, even at night; but a heavy responsibility, not to be evaded in this age, rests upon those who so do. The one proved and most certain fact about alcohol is that its primary action upon the nervous system is to paralyse all forms of self-control. Hence, and hence only, the refutation of this typical narcotic as a "stimulant," and hence Dr. Dukes's warrant for these none too forcible words: "In plain English, a master who allows his pupils to drink beer at bedtime, and a parent who sanctions it, implicitly say to them: 'I give you this beer at bedtime, well knowing that it will blunt your intellect, deaden your conscience, and diminish your will-power, and that at the same time it will excite your animal instincts.'"

In conclusion, the long-held and reiterated belief must be stated that eugenic education is a problem which no one kind of person can solve alone. When all the writing and talking are done, in the actual issue we shall often and often fail unless and until we can effect the Quadruple Alliance for which I have long pled. The teacher, the parent, the doctor, the clergyman can, none of them, effect sane sex-teaching single-handed. At present they all, in large measure, neglect their share of the task, largely because they know its futility thus attacked. Surely the time has come for a conference of some kind between well chosen representatives of all these four, not jealous for their particular point of view, but merely eager to do their part in the co-ordinated attack upon the common foe, that "ignorance in motion" which Goethe called "the most dangerous thing in the world."

THE COLLEGE OF PRECEPTORS.

HALF-YEARLY GENERAL MEETING.

The ordinary Half-Yearly General Meeting of the Members of the Corporation was held at the College of Preceptors, Bloomsbury Square, on Saturday, October 24.

Sir Philip Magnus was appointed Chairman.

The minutes of the last meeting were confirmed.

The Report of the Council was laid before the meeting, and was taken as read, a copy having been previously sent to every member of the College. It was as follows:—

Report of the Council.

The Council beg leave to lay before the members of the College the following Report of their proceedings since the issue of their last Report:—

1. A Course of Twelve Lectures to Teachers on "Educational Psychology" has been delivered by Prof. John Adams, and a Course of Twelve Lectures on "Problems in School Practice" was begun on October 1.

2. The Summer Examination of Teachers for the College Diplomas was held on August 31 to September 5. It was attended by 169 candidates—128 men and 41 women. Since the issue of the last Report, the Diploma of Licentiate has been conferred on 4 candidates, and that of Associate on 10, who had satisfied the prescribed conditions. A Practical Examination for Certificates of Ability to Teach was held in May; the number of candidates examined was 2.

3. An Examination of a Foreign Teacher for a Certificate of Proficiency in English was held on May 7 and 8.

4. (*a*) The Midsummer Certificate and Lower Forms Examinations were held on June 29 to July 4, and were attended by 4,204 candidates.

(*b*) The Professional Preliminary Examination was held in the second week in September, and was attended by 274 candidates.

5. The Council have conducted the Examination and Inspection of four Schools.

6. (*a*) The Examination which was conducted by the Council on behalf of the Newfoundland Council of Higher Education was held at 158 Centres on June 22 to 29. The total number of candidates examined was 2,944—viz., 100 for the Associate Grade, 590 for the Intermediate Grade, 1,079 for the Preliminary Grade, and 1,175 for the Primary Grade.

(*b*) On behalf of the Grenada Board of Education, the Council have conducted an Examination of Teachers in Grenada in School Management. There were 11 candidates: 3 for the Second Class and 8 for the Third Class.

(*c*) At the request of the Governors of Sir Robert Hitcham's School, Coggeshall, the Council have conducted an Examination for Secondary School Exhibitions and Junior Technical Exhibitions.

7. (*a*) Since the issue of the last Report eighteen members have been elected, and three have withdrawn from membership. The Council regret to have to report the death of the following members:—Mr. H. Broadbury, L.C.P., Mr. J. F. J. Cuttance, Mr. W. F. Hopkins, and Mr. G. Mansell, A.C.P.

(*b*) Arrangements have been made for a reduction of 25 per cent. in the charges to members of the College for advertisements in *The Educational Times* of posts vacant and posts required and for advertisements of a purely personal character.

8. Arrangements have been made for a series of members' meetings,

of the same kind as those which were held last winter, to take place during the present session; but, in view of the existing national situation, the Council have decided to cancel the arrangements for the present. They trust that their action will be approved by the members.

9. Copies of the College Calendar for 1914–15 have been sent, without charge, to all life members and subscribing members.

10. Grants amounting to £51 have been made from the Benevolent Fund.

11. A deputation, consisting of representatives of a Joint Committee of the College of Preceptors and the Private Schools Association, attended at the Board of Education on July 9 to urge the claims of Private Schools to be included in any national system of education. The deputation was received by the President of the Board, the Secretary, and the Principal Secretary for Secondary Education. Resolutions which had been adopted by the Joint Committee and also by the Federal Council of Secondary School Associations, and which were published in the August number of *The Educational Times*, were submitted to the Board.

12. (*a*) Representatives of the Council have taken part in the work of the Teachers' Registration Council, the Federal Council of Secondary School Associations, the Teachers' Training Committee, the Joint Scholarships Board, the Committee of the Conference of Educational Associations, the League of the Empire, the Educational Kinematograph Association, the Joint Scholastic Agency, and the Joint Agency for Women Teachers.

(*b*) Since the issue of the Conditions of Registration the applications for admission to the Register of Teachers have numbered about 4,000. Of these, over 3,500 have been accepted. Among the applicants are many who hold the College Diplomas, while a considerable number of our members have supported the movement. Arrangements are in progress for the preparation of a printed List of Registered Teachers, which it is intended to issue as soon as convenient.

(*c*) The Joint Scholastic Agency has had a fairly good year. The abolition of the Registration fee of 2s. 6d. has had an initial effect of reducing the profits, though it is expected that the permanent effect will prove beneficial. The Agency has £167 saved towards the £200 at which the Committee originally aimed. An interesting feature of the recent work of the Registry is that it has filled a large number of temporary posts in consequence of the War.

The Joint Agency for Women Teachers has maintained its usual average of successful work. It has now about £500 on deposit against any possible deficiency of receipts.

The position of both Societies seems to be quite satisfactory. It must, however, be remembered that both have to meet increasing competition from non-professional agencies. Much assistance could easily be given if the Heads of Schools would be good enough to give the Joint Agencies notice of vacancies a day before sending it to the press or to other Agencies.

(*d*) At the Annual General Meeting of the League of the Empire, held at Caxton Hall, July 18, the Right Honourable the Earl of Meath in the Chair, the following resolution was carried unanimously: "That this meeting records its appreciation of the importance of the work which the League of the Empire has accomplished in the interests of Imperial Education, and resolves to use all possible efforts to assist it in its endeavour to draw yet closer all peoples of His Majesty's Dominions in the bonds of brotherhood and learning." An invitation from the Minister of Education for Ontario to the Imperial Conference of Teachers' Associations to meet at Toronto in 1916 was cordially accepted. The representatives of the College desire to express their appreciation of the excellent work which the League has done, and is doing, in uniting the Colonies of Great Britain with the Motherland—a union which at the present crisis is so splendidly manifested.

With reference to Paragraph 7, Dr. Dickinson, Chief Superintendent at the main London Centre for Boys, paid a warm tribute to the able and efficient manner in which Mr. Broadbury and Mr. Hopkins had for many years assisted in the conduct of the College examinations.

In reply to an inquiry with regard to Paragraph 11, the Chairman said he was convinced that the President of the Board of Education would do what he could to prevent private schools from being crushed out and to secure recognition for such schools as part of the national system.

In connexion with Paragraph 12 (*d*), the Chairman read to the meeting a message which Earl Roberts had sent to the League of the Empire in order that it might be transmitted through the League to the children of the Empire.

The Report of the Council was adopted.

At the suggestion of Prof. Adams the meeting expressed its cordial approval of the action of those members of the teaching profession who were taking part in the War, its pride that so large a proportion of the profession had volunteered for active service, and its fervent hope that they might return safe and sound.

The Dean, in submitting his Report, expressed the hope that the Examiners' Reports might be found serviceable to teachers and assist towards the object the College had in view in holding examinations — viz., the improvement of education in schools. The Report was as follows:—

The Dean's Report.

In addition to the general statement of the examination work of the College during the past half-year, which has been embodied in the Report of the Council, I have now to submit to you some details concerning the Midsummer Certificate and Lower Forms Examinations, together with extracts from the reports of the Examiners.

The Examination was held at 102 Local Centres and Schools from the 29th of June to the 4th of July. In the United Kingdom the Examination was held at the following places:—Aberdeen, Balham, Bath, Battersea, Belfast, Bentham, Birmingham, Blackburn, Blackpool, Brighton, Bristol, Bruff, Cabra, Cardiff, Carmarthen, Carnarvon, Charleville, Cheltenham, Clapham, Cork, Croydon, Dublin, Dumfries, Ealing, Eccles, Edinburgh, Exeter, Eye, Falmouth, Farnborough, Felixstowe, Forest Hill, Glasgow, Goudhurst, Grove Ferry, Hawkhurst, Herne Bay, Highgate, Huddersfield, Inverurie, Kingstown, Kirkwall, Launceston, Leeds, Lincoln, Littlestone-on-Sea, Liverpool, London, Lostock Gralam, Manchester, Margate, Matlock Bank, Mayfield, Merthyr Tydfil, Mountmellick, Newcastle-on-Tyne, Newquay (Cardigan), New Ross, Northampton, Nottingham, Ongar, Pencader, Plymouth, Pontypridd, Portsmouth, Rhyl, Richmond (Surrey), Rochester, Rugeley, St. Helens, Scorton, Seven Kings, Sheffield, Southampton, Southend, Southport, Sunderland, Taplow, Taunton, Thorne, Wandsworth Common, Waterford, Wellington (Shropshire), Westcliff-on-Sea, West Hartlepool, Weston-super-Mare, Wicklow, Wigton, York. The Examination was also held at Cape Coast Castle, Colombo, Constantinople, Georgetown (British Guiana), Gibraltar, Mandeville (Jamaica), Nassau (Bahamas), Rangoon, and Wei-hai-wei (China).

The total number of candidates examined was 3,180—2,457 boys and 723 girls.

The following table shows the proportion of the candidates who passed in the class for which they were entered:—

		Examined.	Passed.	Percentage.
Boys.	Senior	212	132	62
	Junior	905	548	61
	Preliminary	716	500	70
Girls.	Senior	172	94	55
	Junior	222	165	74
	Preliminary	294	238	81

The above table does not take account of those candidates who obtained Certificates of a lower class than that for which they were entered, nor of those (659 in number) who entered for certain subjects required for professional preliminary purposes.

The number of candidates entered for the Lower Forms Examination was 1,024—658 boys and 366 girls. Of these, 516 boys and 284 girls passed, or 78 per cent.

EXTRACTS FROM EXAMINERS' REPORTS.

Scripture History.

Senior.—The majority of the candidates appear to have taken the Old Testament history as their principal subject. Here the work was mostly thorough and intelligent, though some had not been trained to aim at completeness in their answers. The improvement noticed in the Examination of last December has been well maintained. In the Gospel the Examiner would have liked to find a closer acquaintance with the *specially Lucan* matter, but he can report well of the general knowledge shown. The Gospel narratives were reproduced with sincerity, and in a reverent spirit, creditable to teacher and pupil alike. The answering was less good in the Acts, but probably candidates had had less time for the study of this book. The Epistles were fairly well known by the few who offered them for examination.

Junior.—The papers of the Junior Candidates in Scripture History do not provide much material for special remark. There were none of really exceptional merit as a whole, and comparatively few that can be regarded as very good. Many candidates, however, did very good papers in one of the two sections (usually a New Testament portion), but either did not take a second or obtained too few marks on that portion to bring them up to the distinction standard on the whole examination. In the case of many who answered questions in two sections, the answers on one of them were almost negligible; over 120 (more than one-sixth of the whole number) scored fewer than 10 marks on one of the sections they attempted, in 29 of which

cases no marks at all were gained. Very few candidates took Paper A, and the best of those who took it failed to reach a high standard. It was remarkable that, while almost all these candidates gave the quite unimportant detail of the building of Mizpah by Asa, not a single one had noticed that it was the seat of Gedaliah's government and the scene of his murder. In Paper B not more than two or three included Amasa among David's nephews, and comparatively few recorded Joab's protest against the numbering of the people (Question B 3). In the paper on the Gospel there were very many unsatisfactory accounts of the institution of the Lord's Supper as recorded by St. Luke, passages which do not occur in that writer being added to or substituted for his words, and at least 70 or 75 per cent. of the candidates who attempted Question C 2 transferred to the charge to the Seventy instructions which are found not there, but in the very similar charge to the Twelve. In answering Question C 3—a question on the whole satisfactorily dealt with—many candidates appeared to have inaccurate ideas of the meaning of the word "parable," and quoted illustrations which would not legitimately fall under that head. The most remarkable failure was that only a single candidate, in answering Question C 4 (*d*), pointed out the distinction between the plural "you" in the words quoted and the singular "thee" in the context, "I have prayed for *thee*." A surprising number of candidates filled the blank in Question C 5 (*b*) with "Martha" instead of "Mary." The Acts paper was quite well done by the majority of the candidates who took it as their chief portion and not as a mere addendum to another section. Comparatively few appeared to have had their attention drawn to the fact that the words of Our Lord quoted by St. Paul at Miletus, Question D 4 (*c*), are not recorded in the Gospels. There was at some centres a good deal of bad spelling, especially in proper names, but there was a conspicuous absence of the irreverent use of colloquialisms in connexion with sacred literature and persons which was noticed in some previous examinations.

Preliminary.—The number of passes is somewhat below the average. This is due not to a falling off all along the line, but to the failure of certain groups of candidates. The paper set was not harder than usual. The majority of candidates chose the New Testament section of the paper, and on the whole it was well done. Candidates who took the Douay version did excellent work.

Lower Forms.—On the whole the papers were of average merit. Considering how young the greater number of the candidates are, the answering was good and often excellent, both as regards the grasp of essential points and the general style of work. The questions which were set in Old Testament sections seemed to touch points emphasized in teaching. Where the marks show a large number of successive failures, this has been due to want of adequate preparation of the subject.

English.

Senior.—The Analysis was done intelligently by about one-third of the candidates; the majority were content with merely briefly *naming* each clause, without attempting to "explain the nature" of it, as asked in the question. The Parsing was very imperfect as a rule; obvious facts, such as number and tense, were paraded; but essential ones, *e.g.* the *case*, and reason why, were omitted. The sentences framed to show the meanings of words were very satisfactory. There was considerable improvement, as compared with previous examinations, in the metaphorical use of words. The Essays were distinctly better than at previous examinations as regards vivacity and common sense; but spelling and idiom were often deplorably illiterate.

In Literature most of the candidates answered well on their first author, but the answers to their second were as a rule perfunctory scraps. Many obtained fewer marks on two authors than were secured by others who handled only one; several of the former actually "failed" on the whole performance, *i.e.* two authors together with grammar. The "Tempest," the favourite alternative, was well prepared and vigorously answered. But many, even of the best candidates, were so blinded by their enthusiasm for the play that they did not notice the exact details referred to in the various questions; regardless of relevance, they trailed the merits of some dominant personality through every one of their answers, repeating themselves again and again without adding to their score. Also, in stating the "context" of a passage, many would give a complete *précis* of the act or scene to which the passage belonged. *Chaucer* and *More* were very well done by the few who selected these subjects. *Tennyson* provided the least satisfactory series of papers; few were really good, and many were scamped work.

Junior.—The average results, both in Grammar and Literature, were very good. The best candidates in Grammar were fairly accurate in their answers to all the questions, but not 1 per cent. of the candidates stated correctly the rule for doubling the final consonant in the comparison of adjectives. The weak candidates were deficient in their knowledge of analysis, strong verbs, and syntax. The general acquaintance with the Literature textbooks, especially the plays, was praiseworthy. The explanations of obscure words and phrases, and the descriptions of persons mentioned in the plays, were more accurate than the answers to the corresponding questions on the other books. The majority of the essays were good both in matter and phraseology. The most popular was, "The services rendered to the public by policemen." A few essays on "Fishing" were noteworthy for their technical knowledge or for their literary qualities.

Preliminary.—Literature: The Literature had been very well learnt, the facts asked for, and the references, being usually correct; while the expression of what was said was good. An exception occurred in the case of the question asking the explanation of certain proper names in the "Call of the Homeland"; and in the Tennyson paper a great number of candidates either did not attempt or did not understand the question on similes. A general error of judgment running through the Literature papers was that too much time was taken up in the descriptions asked for, leaving insufficient opportunity to deal adequately with the Essay question that followed. But the answers on the whole afford pleasing proof that what had been studied was studied with thoroughness and intelligence.

Grammar: The great number of answers that consisted merely of wild shooting at grammatical expositions, was somewhat surprising. Here and there one came across a candidate who had assimilated principles sufficiently to apply them with some discrimination to the points asked about; but in general parts of speech were not recognized, phrases were consistently confused with clauses, apposition was not understood, adjuncts were guessed at. The question eliciting some knowledge of the theory of punctuation was only very occasionally treated with anything like sureness. The best answer, on the whole, was given to the question asking for sentences containing the same word as different parts of speech.

Composition: The machinery of expression, as apart from the thing said, was in most cases worked defectively. Punctuation was breathless and disordered, and spelling too often unsound. On the other hand, several compositions (on the subject of a personal adventure) evoked the eloquence of phrase that a first-hand interest often excites.

Lower Forms.—Dictation, Reproduction, Writing: Generally the work was of a higher standard than at previous examinations. In the Dictation the spelling was good; there were fewer cases of bad writing; the story was better grasped, and in most cases reproduced in better style. Attention has plainly been given to the use of capital letters, stops, and quotation marks; and there was an evident desire shown to produce a *composition*, as distinct from a mere string of statements, and even to preserve due proportion, and to cast the story into suitable paragraphs, as well as to tell it attractively. There are still many candidates who do not realize that a sentence should contain a thought, and that capital letters and stops are for helps in giving that thought its due expression.

Grammar: The work in Grammar was more thoughtful; there was much less guessing and mechanical answering. Many papers were badly arranged, and there was not a little mis-spelling of technical terms and even of words printed on the question paper. Many candidates read questions carelessly, confusing "connect" with *correct*; using *though*, *thought*, and *through* as words having the same meaning. Adverbs, adjectives, and prepositions were confounded, and few seemed to know the entire function of prepositions. As in Composition, candidates would do well to realize that a sentence, offered as an example, should be an expression of a *thought*, and that capitals and stops are needed. The best work was very good. The papers generally showed a higher standard of work than previously, mistakes arising rather from carelessness and want of thought than from absolute ignorance.

Literature: There was no particular preference manifested for either of the two subjects, and in both cases the text was, as a rule, well known. The style of the answers showed some advance in freedom of expression, and candidates proved themselves better able to represent the substance without the exact form of the original. Punctuation, however, was weak, and was often ignored altogether. In the "Ancient Mariner" paper there was occasionally too great a tendency to rely on the marginal summary rather than on the text of the poem itself.

English History.

Senior.—A good average standard of knowledge was shown, but very few obtained distinction. Period A, B.C. 55–A.D. 1135: Except in rare instances the questions relating to the period before the Conquest were poorly answered, excepting the one on the effects of the Roman occupation. The reign of William I appears to be better understood. Anglo-Saxon history would be better taught if it were treated in periods such as the Northumbrian, Mercian, and West Saxon supremacies, so that the confusing names and events could be related to a few leading ideas. The knowledge of early English institutions is interesting to boys. Period B, A.D. 1042–1485: The question on archbishops was generally well answered, though Lanfranc is still often confused with Flambard, and very many stated that Innocent III forced John to grant the Charter by his Interdict. Very few could give a clear account of a manor, most only describing a house or castle. Period C, A.D. 1399–1702: Better papers were written on this than on any other period. While nearly all knew

something of the Hampton Court conference, very few knew anything of the Westminster Assembly or the Savoy conference. Algernon Sidney was evidently an unfamiliar name, and few could distinguish between Cromwell's policy as Protector and that which he had advocated before the war. Period D, A.D. 1660–1815: Vinegar Hill was constantly confused with Bunker's Hill, and Warren Hastings with Clive. Pitt's policy before the French war was rarely understood, but the effect of English sea-power was generally perceived, though rather vaguely explained. Period E, A.D. 1760–1902: Hardly anyone could quote a famous saying by either Pitt. The Reform Act of 1832 was understood, but few could give any account of the principal measures that followed it. The offices held by Cabinet Ministers were well known, but the control of the Commons over the Cabinet rarely understood. Similarly the names of Victorian Premiers were remembered, but their achievements forgotten, and the Act of Union with Ireland was well described, but its legislative fruits unknown. Modern history requires much explanation from teachers if anything beyond names and dates is to be grasped by students. Period F, General Outlines: Few took this paper, but it was well answered by those who chose it.

Geography.

Senior. — The failures in this paper were mainly due to an unusually large number of candidates selecting the majority of their questions from Section A, the Physical Geography portion. At some centres the failures were few, but unfortunately several large centres were not included among these. One predominant fault, peculiar rather to the younger candidates, was neglect to study the questions carefully. Thus Question A 10 asked how we know that the earth is not an exact sphere, but large numbers gave reasons for its being a sphere; Question B 11 inquired about the northern plain of Europe as far as Russia, and some gave the physical features of Russia only, while others included Russia; and again when the sources of the foodstuffs imported into Great Britain were required, many gave all the imports of which they knew anything. The Physical Geography was characterized by its great inaccuracy, especially in the case of some large centres: thus a volcano was described by many as a burning mountain, to which was frequently added "sending out ashes, fire, and smoke." Cold air was said to blow from the poles to the equator, producing the trade winds, while the poles were described as regions of calms. Icebergs were often described as frozen rivers, and the snow on mountains was said to melt and form rivers which freeze into glaciers. Some candidates confused east with west, latitude with longitude. Great ignorance was displayed of the climate and productions of different characteristic regions of the earth. On the whole, candidates would do better to study carefully *portions* of good books on Geography (especially physical) than to attempt to cover the whole of the syllabus in more elementary works, for it should be remembered that only six questions are required to be answered out of eighteen, which are carefully spread over the whole of the subject.

Junior.—Though much satisfactory and pleasing work was shown up, still, on the whole, these papers were of rather a low standard. Many candidates were obviously quite unprepared for the examination. Chief defects in detail: (1) Inability, or something like inability, to understand the very plain instructions printed at the head of the paper. (2) Evidences of out-of-date textbooks. By this time candidates for the Junior Certificate should really be ahead of the old-time textbooks, which ascribed the characteristic features of European climate to the Gulf Stream. (3) Carelessness. Over and over again candidates would draw a map of the whole of Africa when South Africa only (Question A 1) was required; or would give examples from South America or Asia when European instances (Question A 3) were expressly asked for; or would carefully describe mineral instead of agricultural industries (Question B 8); and New York City instead of New York State (Question C 8). The set maps of the various sections (except A—the South African map alluded to above) were, as a rule, very well done, and proved the salvation of a large number of candidates. This, though appertaining to the "memory" type of question rather than to the "reasoning" type, is indicative of one good point—viz., the increased use of the atlas in the geography lesson.

Preliminary.—The answers to Question A 1 (the map) were hardly satisfactory. Few candidates were able to draw and number, even approximately, the lines of latitude and longitude. The chief fault, however, was the placing of highlands across rivers, in some cases actually across the mouths of rivers. Questions A 2 and A 3 were, on the whole, satisfactorily answered. The first part of A 4 was fairly well done; but the second part, relating to the influence of highlands, was not satisfactory. Many candidates treated the matter generally, without reference to Ireland and Scotland. In Questions B 5 and C 5 the illustrations were moderate, or in many cases omitted. Much uncertainty prevailed with regard to a glacier; confusion with an iceberg or avalanche was common. In Questions B 6 and C 6 there was want of explicitness in giving localities, and an almost universal inability to point out the advantages derived from position, candidates calling to their aid any and every matter for which the towns may be famous—*e.g.* Milan's advantage was its cathedral; Gibraltar's, its siege; Khartum's, the death of Gordon; &c. Questions B 7 and C 7 were, on the whole, fairly done; but many candidates did not appear to understand the meaning of physical features. Sicily was confused at times with Scilly Isles. In Question B 8, the answers to (*a*) and the second part of (*b*) may be described as good, but to the rest of the questions the answers were beside the mark. In Question C 8 the answers to (*c*) were for the most part sound, but the rest of the question was moderately done. No hint was made in answer to (*d*) of the influence of altitude on climate. Regarded as a whole, the answers can hardly be pronounced as satisfactory, and in many cases the want of neatness is to be deplored.

Lower Forms.—The papers, as a whole, were eminently satisfactory, and the answers throughout were neatly and methodically set forth. In answer to Question 1 (the map) many candidates did not seem to realize that the mark □ to denote the situation of a town, ought to be placed where the town actually is, but they attached the mark to the end of the name, frequently putting it well out to sea; others used the mark with every name on the map. In Questions 2, 3, and 5, there was the usual want of explicitness in stating localities. In Question 5, the reasons given why the industries have sprung up were not very convincing. Question 6 was well answered, though in a few papers "hardware" was confused with "earthenware." In Question 7, most candidates were able to supply the names of three canals, but many failed to point out the uses. Some candidates interpreted "canals" as "channels."

Arithmetic.

Senior.—The great majority of the candidates did the first six questions in the paper in good style and accurately, and a few were successful over the more difficult questions at the end. Weakness was shown in decimals, in compound proportion, and, in the harder questions, in the treatment of area and the idea of united labour.

Junior.—The work of the candidates was satisfactory. There was a considerable number of excellent sets of answers and only a very small number of bad sets. The careless interchange of two figures, by a candidate, when intending to copy a number from a question, or from work, was of far too frequent occurrence, and there was much use of very extensive and peculiar methods of calculation. Some candidates did not appear to know that all calculation not mental should be shown, or that method, calculation, and result, should be together, and others seemed to think that it was their duty to write out the questions.

Preliminary.—The work as a whole reached a satisfactory standard. A fair percentage of the candidates, both Home and Colonial, did all the questions set correctly. On the other hand, the work of some of the candidates was quite valueless. Between these limits a good deal of sound and accurate work was done. There were some untidy and ill arranged papers, but fewer than in some recent years. The questions least well answered were 8 and 9.

Lower Forms.—The work was on the whole good, and several candidates obtained full marks. The increasing use of factorial methods in finding G.C.M. and L.C.M. calls for commendation. In the questions on fractions the methods were often rather clumsy, and neglect of cancelling caused much unnecessary labour. There was the usual confusion between minutes and seconds and between yards and feet, and there is still much inaccuracy in the working of the "bill."

Algebra.

Senior.—The answering did not reach a high level. Progressions were fair, arithmetical accuracy was reasonably good, and the question on division, with its fractional coefficients, fairly well attacked. Factors were moderate, simple equations good, and quadratics moderate; but graphs, problems, and surds were all very weak. Scales in graphs should be chosen so that the graph may extend over the whole paper. In surds, few rationalized properly, preferring to substitute and use arithmetic.

Junior.—In Question I it was intended that the numerical substitution should be carried out at once. Many candidates multiplied out the symbols at great length, with the almost certainty of obtaining a wrong result in the final substitution. Candidates should bethink themselves of the easiest and shortest way of answering a question—of any simple device for saving work—and of the desirability of going over their working at the end so as to test its correctness. Had these cautions been borne in mind, candidates would never have involved powers of x or y to the 16th in the simplification of the denomination of Question 5 (ii), or bungled Questions 6 (ii) and (iii), as so many did. Question 7 was done by the majority, but Question 8 was set out without much thought. In certain cases the problems attached to Question 9 produced numbers which even a slight reconsideration of the opening statement would have shown the candidates were manifestly wrong.

Preliminary.—The paper was very fairly done. A certain weakness was shown in Question 1 (ii); Question 2 (ii) and the subsequent subtraction; Question 5 (iii), (iv); Question 6 (iii); and Question 9;

but these elements were on a higher level than the rest of the paper. In Question 9 most candidates failed to remember the simple formula connecting *space*, *time*, and *velocity*.

Lower Forms.—The straightforward questions were generally very well done, and the work was almost always neatly arranged. In such questions as Nos. 8 and 9 it is desirable that each step of the argument should be explained; many candidates satisfied themselves with putting down the symbols only, without stating what they represented.

Geometry.

Senior.—The work was very variable, but there was a very noticeable lack of power to perform any constructions except the simplest: thus comparatively few could construct the bisector of the angle between two lines whose point of intersection was inaccessible, or construct a rectangle equal to the sum of two others, and none could construct the tangential circle of Question B 3. Somewhat better results were obtained with Question B 4, but only from a few candidates. Hardly anyone could construct a trapezium whose sides were given (Questions A 4 and B 6). In the theoretical part, the bookwork was fairly well done, sometimes very well, the chief fault being in the proof of the angle-property of a cyclic quadrilateral by help of central angles, where many failed to point out clearly which central angle was double a given angle at the circumference. The deductions were rarely attempted, except the first three in Paper A, and those attempts were often very poor. However, a fair number of candidates did these well, and a few managed the deductions of Questions A 4, A 5, A 7, A 8, and A 9. There were no satisfactory answers to the deductions in Question A 6, and very few attempts. The length of the paper would account for all the deductions not being done, but hardly for the very faulty attempts at the easiest ones. The angles asked for in Questions A 1 and B 5 were frequently given quite erroneously, with no obvious reasons for the values given, and in Question A 2, the wrong angles of the triangles *OAD*, *OBE* were frequently equated, chiefly owing to bad diagrams coupled with weak powers of argument. More attention needs to be paid to construction work, to good diagrams generally, and to a variety of deductions.

Junior.—Much satisfactory work was sent up, but many candidates through inattention wrote out propositions which were not asked for. A very good proportion of papers were neatly written and lucidly expressed: a great point. Orderly arrangement of thought should be more insisted on by teachers; there were too many papers which were ill expressed and confused.

Preliminary.—A good many of the papers showed that the subject had been carefully taught and studied. Many of the candidates gained a satisfactory percentage of the marks, and one or two acquired distinction. There were, however, a considerable number who obtained more than one-third of full marks by means of one or two correct answers intermingled with unsatisfactory or even wholly unsound work. Lastly, there was a large number whose work must be described as worthless. Among common faults was the tendency to suppose that two triangles which had two sides equal to two sides and one of the *non*-contained angles equal were necessarily equal in all respects. Others proved two sides equal, and added "*therefore* the contained angles are equal." Definitions were well known in some schools, but in a large number they were either carelessly learnt by rote or utterly unknown. Thus a surface was said to have "length and *breath*, but no *debt*." Another explained that a *surface* was the part inside a circle, and a *plane* surface the part outside. Many held that an equilateral triangle had three right angles. One candidate rose superior to any attempt at geometrical demonstration, and appealed to common sense as his *ultima ratio*. In many cases the practical work was very good, but it was too often combined with very inferior theoretical work.

Lower Forms.—As a general rule the work was neatly done, and with satisfactory accuracy. Many, however, omitted to show construction lines in some of the figures, and very few gave any verbal statements of their work. Very few showed how parallel lines were drawn or appeared to know a geometrical method for their construction.

Trigonometry.

While on the whole the answering was fair, enough attention was not paid to accuracy and thoroughness in the groundwork. In logarithms negative characteristics were not handled well. Many candidates confused natural and logarithmic functions, and almost all worded their proofs loosely.

Mechanics.

Senior.—The paper was not answered satisfactorily, except by a few candidates. The answers of many of the candidates showed a complete lack of knowledge of the elementary principles of mechanics. Many of the mistakes made in the answers to Questions 3 and 4 on Statics might have been avoided if the candidates had adopted the usual, and almost essential, precaution of drawing a rough sketch, and indicating therein all the forces acting upon the body in question. In the Dynamics portion of the paper the common mistakes in units were more frequent than usual; and the question on Relative Velocity was especially badly done. In the Hydrostatics portion of the paper the question dealing with the thrust upon a plane surface immersed vertically was seldom correctly answered.

Junior.—The various questions were answered satisfactorily by one or other of the few candidates who took this paper, with the exception of the question dealing with the relation between force and acceleration, and that dealing with the experiment for determining the specific gravity of a solid.

Book-keeping.

Senior.—The papers were very good on the whole, although some batches were still weak. The definitions were, however, as usual poorly attempted. The greatest weakness was shown in the "purchase of a business" question, where the fact that the difference between the "assets and liabilities" purchased and the amount of the purchase money was "goodwill" was evidently unknown. There was a pronounced improvement in the answers to the practical question—the last—and very many succeeded in doing the Trading Account, Profit and Loss Account, and Balance Sheet correctly.

Junior.—The work showed a decided improvement on the whole. The Cash, Bought and Sold books, and the Journal were well done, but the Ledger did not show such an improvement. The chief faults were not balancing the Cash book, and the unnecessary opening of Cash and Bank accounts in the ledger—candidates being apparently unaware that ledger accounts for bank and cash are unnecessary when a proper Cash book is kept. Bills transactions were the least well done, confusion between Bills Payable and Bills Receivable being evidenced. It is to be regretted that the candidates at some centres still journalize all items (even when doing the other books of first entry also).

Preliminary.—The Cash book was, as before, least well done, *e.g.*, bank overdraft was mechanically entered as balance at the bank on the Receipts side. The journalizing and ledger-posting were creditably done on the whole. The questions were generally attempted, but the answers were not very good, although a choice was given.

Mensuration.

Senior.—On the whole this compared feebly with the Junior. Many candidates seemed to have no idea of "dimensions." The volume of a sphere would be given as $4\pi r^2$, the area of a triangle as $\sqrt{s+(s-a)+(s-b)+(s-c)}$, the area of a circle as $2\pi r$, and so on. With senior candidates such errors should be impossible. One otherwise good answer was quite spoilt by the sum of the squares of the sides of a right-angled triangle being equated to the hypotenuse instead of to its square. There were some good exceptions, and a few excellent papers, one specially good one coming from the Colonies and obtaining over 90 per cent. Question 1 was generally correct. Question 2 was very seldom correct, and was often misunderstood. Question 3 was seldom correct, but there were a few good answers. Question 4 was seldom correct, generally from difficulties with the hexagonal area. Question 5, when correct, was done by the trapezoidal method. There seemed to be no attempts at a well drawn figure with a curved boundary, with strips calculated by mid-ordinates or Simpson. Often the faulty method of taking the arithmetic mean of the given ordinates was adopted. There were some good answers to Question 6, but wrong formulae often spoilt the attempt. Question 7: occasionally the sector was done correctly, but not often, and the second part was never completely correct. Attention needs to be paid to the meaning and fundamental importance of "dimensions," and to accuracy and neatness of work.

Junior.—In the better papers a good deal of good careful work was shown up, but in many cases the writing and arrangement were untidy. The algebraic part of the subject was fairly good in most cases, *i.e.* the formulae for circles and spheres were generally accurate and used properly, but the geometry was seldom good. For example, the side of an equilateral triangle inscribed in a given circle and the side of an octagon cut out of a square were but seldom attempted to be properly found, though there were a few excellent exceptions. The area of the field (Question 4) was often correct, but generally marred by inaccuracies, and some few candidates made the distance of *D* from *A* equal to the *sum* of the lengths given in the central column. One set of candidates had an excellent method of obtaining the area in terms of triangles whose bases extended on both sides of the offsets, but most took triangles and trapeziums. Very few knew the expression for the curved surface of a cone, and some gave the volume. The arrangement of the work in Question 7 was not good, and the final ratio asked for was generally given as an unwieldy vulgar fraction, instead of being decimalized. Question 3 was done rightly by very few candidates, and Question 2 by not many more. The problem of the spheres in the jar (Question 5) was often well done, and was generally taken in hand rightly even when spoilt by numerical errors. With regard to numerical errors, the most astonishing thing was the variety of answers to Question 1,

the weight of a mile of the wire varying from over three thousand million tons to ·16 of a lb. A little practice in rough checks might have prevented such gross errors. Attention needs to be paid to neatness, accuracy, dimensions, and numerical checks.

French.

Senior.—The majority of the candidates did sound work in all parts of the paper, and gave evidence of careful study. A small proportion showed a very insufficient knowledge of the language. The more usual weaknesses were a want of care in making out the sense of the French passages and in choosing the right English words, a want of knowledge of the conjugation of the irregular verbs and of the use of pronouns, and a frequent carelessness in spelling and construction shown in the French composition.

Junior.—The translation into English was, as a rule, very well done, but the grammar and the translation into French were unsatisfactory. The attempts at free composition were for the most part of little value, many of them consisting of phrases strung together without any connected meaning; and there were frequent grammatical inaccuracies.

German.

Junior and Preliminary.—The standard of knowledge shown in many papers would not satisfy even moderate demands; the teaching of grammar and the formation of sentences seem to be much neglected; in the translation of the unseen passages there was a good deal of guess-work.

Lower Forms.—The great majority of candidates showed almost complete ignorance of the first elements of the language.

Welsh.

Seniors.—The work was in the main of sound quality, but there were many candidates who appeared to have been insufficiently trained in grammar, including the use of the initial mutations. The composition showed a steady improvement, but there is still room for greater accuracy, especially in the use of the mutations, and for a clearer discrimination between literary and merely colloquial forms.

Juniors.—The papers revealed marked promise, and some of the compositions especially showed that their writers were able to express themselves simply and naturally in correct literary Welsh. The weakest part of the work was in grammar—not so much, perhaps, in purely formal grammar as in the applied grammar connected with the initial mutations, and the like. More work, too, might be done with advantage in the explanation of certain simple and distinctive Welsh constructions.

Preliminary.—The work was necessarily of an elementary character, but it was very pleasing to note the keen zest with which in most cases it was done, and the obvious signs of sound teaching. Care should be taken to see that the pupils acquire habits of accuracy in the application of the most common grammatical rules and in the spelling of familiar words. It would be well also that careful attention should be paid during the course of training at this, no less than at other stages, to the quality of the pupil's English, so that the exercises may in that way serve a double purpose.

Latin.

Senior.—71 candidates took the Caesar paper, 22 Virgil, 2 Horace, 10 a paper on Unprepared Translation. The translations of the passages from Virgil and Horace were very creditable both as regards accuracy and style; the majority of the candidates who took the former appeared to come from one school, and to have received careful well directed training. The work in Caesar did not reach a good standard; only 22 per cent. of the candidates did really well. Four of the candidates who took Unprepared Translation in lieu of a Set Book grappled intelligently with the difficulties they encountered and achieved a fair amount of success; the remainder failed through disregard of the grammatical structure and the poverty of their vocabulary. About 59 per cent. reached a reasonable standard in the compulsory unprepared passage; greater care was shown than in previous years, and there was a satisfactory freedom from wild guessing. The number of good scripts in Grammar was small. The general work in verb-accidence, parsing, and explanations of cases and moods was fairly good, but the answers to the more elementary questions were far from satisfactory. Questions dealing with subject-matter, allusions, and difficult phrases, were, as a rule, handled fairly well; the books had clearly been read with interest. The Composition was very poor, only a few copies showing an adequate knowledge of accidence, elementary syntax, and idiom.

Junior.—Three candidates obtained distinction, all offering Caesar. Of 204 candidates attempting the Additional paper, 30 obtained 25 marks or more; of the rest nearly all were complete failures. 40 per cent. of those who offered Caesar passed, and 53 per cent. of those who offered Virgil. The difference between the results of Caesar and Virgil papers is explained partly by the fact that a considerable proportion of the best candidates offered Virgil, but still more to the very obvious fact that very many offering Virgil learnt the translation more or less perfectly by rote; in many instances, where it was not perfect, it was sheer nonsense; there were cases where the Unprepared Translation was absurd, grammatical knowledge non-existent, and Virgil translation perfect; and this was particularly noticeable in candidates clearly belonging to the same school. The passage of Unprepared Translation was dealt with rather more successfully than usual by the better candidates; very few could obtain any marks worth speaking of in the Composition, and the Grammar generally was very poor. There is evidence of much bad teaching, and the waste of time and energy spent in a pretended study of Latin is appalling.

Preliminary and Lower Forms.—The papers, especially the Preliminary, showed some improvement on those of the last few examinations.

Physics.

Senior.—Heat and Light: With the exception of Question 1, the first half of the paper—on Light—was entirely neglected. Many candidates did not know the gas laws, and none had a clear conception of what goes on during evaporation, and what determines the saturation pressure. The calorimetry was weak.

Electricity and Magnetism: The papers sent in were only fair—a few were extremely bad. The Current Electricity in particular was poor—not a single candidate knew the fundamental facts in connexion with the Tangent Galvanometer—many confused it with the Astatic Galvanometer. In the Magnetism it was very often stated that the molecules become magnets when the iron is magnetized. The question on the Condenser was answered well.

Junior.—Heat and Light: The answers sent in were, on the whole, good; but many candidates did not know the direction in which a ray is refracted when passing from one medium to another, and the convex lens was confused with the concave lens and even the concave mirror. There was only one perfect answer to the question on colour mixture. The heat questions were better answered than those on light, but the meaning of the term "thermal capacity" and the simple calorimetry were not well known.

Magnetism and Electricity: The general standard was good, and the answers were well distributed over the whole subject. Few of the candidates recognized that a metal may have magnetic properties without being already magnetized. Very little was known about the earth's field. In spite of the italics in Question 4, no one pointed out that the sign of the charge produced on glass, when it is rubbed with silk, is positive by definition. In the Current Electricity the voltaic cell and the electrolysis of water were well known; but the answers in connexion with the theory of the galvanoscope and to the simple question on resistance showed that these subjects have not received as much attention as they deserve.

Chemistry.

Senior.—There appears to be a considerable tendency for ill-qualified candidates to attempt the Senior paper, when from the results it seems doubtful if their knowledge would enable them to meet the requirements of the Junior stage. This practice is much to be deprecated, as the two stages are graduated so that a student may pass rationally from the Junior to the Senior.

Junior.—The majority of candidates selected Section A in preference to Section B. Fewer gross mistakes occurred in the answers to questions of Section A. Questions of the nature of A 7 and B 1, in which a little experience and thought are needed, were indifferently attempted. Want of laboratory practice was also illustrated by the large number of candidates who, in the replies to Questions A 7 and B 4, stated that oxygen is evolved when black oxide of copper and litharge are heated.

Practical.—The practical work was generally unsatisfactory. It was evident that the candidates had been prepared on the stereotyped lines of attempting to apply complex analytical tables which had been more or less committed to memory. Candidates could have obtained sufficient marks to pass on Section I alone. These questions aim at testing powers of observation, deduction and expression, and for their solution only so-called preliminary tests were needed. No satisfactory work was sent in to the questions of Section II.

Botany.

The work of the candidates in Botany showed an improvement on that of former examinations. More attention, however, must be given to the following points: *Large scale diagrams* must be given, showing clearly the arrangements of the parts of the flower and their attachment to the thalamus. The real meaning of the various physiological processes must be grasped in an elementary, but quite definite, manner: *e.g.* respiration is not merely the taking in of oxygen and the giving out of carbon dioxide; it is the means by which the plant obtains *energy*. In the case of a small number of common plants, the actual details of pollination ought to be known. It is distinctly encouraging to notice that a real advance has been made on these lines during the last two years. Careful attention to the above remarks will lead to great improvement in the work.

Geology.

Senior.—The two papers submitted were most unsatisfactory. In neither case did the candidate show any appreciation of geological structure as expressed on the geological map supplied.

Junior.—In no case were the answers good. For the most part, the candidates had not realized geological processes and rock structures, and seemed to have little *practical* acquaintance with the subject-matter.

Drawing.

Senior.—There was an unusual number of really excellent drawings in which the problems both of conception and execution were ably solved, and there were also groups of very satisfactory work. The percentage of distinctions is, therefore, high. On the other hand, some candidates had derived no benefit from instruction, and drew without knowledge or thought either of appearances or of the nature of things. Apparently, although drawing may be taken by a candidate, it does not follow that practice has been kept up regularly after the obtaining of the Junior Certificate. The problem of horizontal lines above the eye is often somewhat neglected in class, but is of constant application; for instance, in drawing buildings of all kinds. While over-elaboration of construction lines is to be deprecated, many candidates would have benefited by fuller use of axes, both of the pail and of ellipses in general. Thoughtless "lining-in" is still responsible for loss of a good many marks. In Memory, even more than in Model, Drawing success depends on clear thinking, and in most of the drawings this was either definitely present or absent —sometimes culpably absent, as when the four legs of the stool were shown as interlaced or all nailed together. Too often the sense of perspective was entirely missing. In very many cases some realisation of the cuboid within which the stool could be enclosed would have made a vast difference. There were only some half-dozen attempts, of fair quality, at the Perspective and Mechanical Section. Of these, only one, a colonial, dealt with the perspective problem.

Junior.—There were a few capital drawings and a good deal of creditable, if undistinguished, work, while the number of entirely helpless candidates becomes perceptibly smaller. Still, the feeble folk who cannot be allowed to rank as having "passed" in Drawing are very numerous. In the great majority of cases more common-sense thought and more concentration are wanted rather than greater dexterity in actual draughtsmanship. In Model Drawing there was a definite improvement in the rendering of the flatness of horizontal surfaces, but this was not accompanied by a corresponding improvement in the relations of parallel lines, and in many cases insufficient stress was laid on the elliptical form of pictures of circles. Proportion needs more attention; too many candidates drew the various objects composing the group with little or no thought of their relationship to one another. Memory Drawing was fairly satisfactory, and calls for little special comment. As was noted at the Examination last December, the results are often better than the methods employed, the various parts of the example being drawn in at once, without any previous arrangement or "setting-out." But with better methods greater success would be easier; too much attention cannot well be given to the observation of proportion and of the continuity of the main forms.

Preliminary and Lower Forms.—As a good sense of proportion, and a good method of securing it, are of primary importance in the rudimentary stages of drawing, freehand examples were selected for these stages, by which a readily understood proposition was placed before each candidate. This proposition was fairly solved by a satisfactory majority of the Preliminary candidates. Though a better standard than last year has in some degree been attained, many Lower Forms candidates are still deficient in respect of proportion, and there are many instances in both grades of careless finishing by heavy and coarse lines. The better model drawings (Preliminary Grade) were interesting, and some were very good indeed; but the average quality of the work leaves much to be desired. Attention must again be drawn to the prevailing faults—viz., that horizontal surfaces, of whatever form, are often represented as if they were tipped up at the back; the upper ellipse of an object of circular plan is frequently too round; and the base is more frequently almost, or quite, flat.

Domestic Economy.

The work as a whole showed better teaching, and altogether more attention to the subject. There was *very little guess-work* apparent, as has sometimes been evident when pupils have been trying to answer with very little real knowledge to base their answers upon. There were, however, many errors, and some papers showed great struggles to remember in such questions as 1 and 2; but quite a large proportion of candidates tackled both of these, though only one was compulsory. Still, in spite of the errors, there was clear evidence of the *right kind of teaching* underlying what was often a slip of memory or a difficulty in remembering words and names.

Political Economy.

The majority showed a useful knowledge of this subject; none were excellent.

Mr. H. King suggested that Esperanto should be included among the subjects of the Certificate Examination.

The Dean replied that, if there was a desire on the part of the schools to have their pupils' proficiency in Esperanto tested by examination, any representation to that effect, if forwarded to the Secretary, would be carefully considered by the Examination Committee.

The report of the Dean was adopted.

A hearty vote of thanks to the Chairman concluded the proceedings.

REVIEWS.

Elementary Logic. By Alfred Sidgwick, Author of "The Application of Logic," "The Use of Words in Reasoning," &c. (Pp. x. 250. 3s. 6d. Cambridge University Press, 1914.)

Mr. Sidgwick's object appears to be to provide a textbook suitable for use in preparing for elementary examinations in Logic. This he attempts, not because he approves either of Formal Logic or of examinations, but because he hopes in this textbook to make the faulty structure to which examiners and logicians persist in clinging a "stepping-stone to higher things." Thus, Part I is written, as it were, under protest—the doctrine which it undertakes to set out appearing to the author to be the only scaffolding from which it is possible to begin the construction of the better fabric destined to replace it. Mr. Sidgwick brings two main charges against Formal Logic as he conceives it. (1) That it contains a large number of terms and rules which are antiquated or useless, and worse than useless. (2) That in applying these terms and rules it proceeds blindly and carelessly; it does not carefully enough or keenly enough inquire what the facts and the things are to which it applies names, nor what are the force and scope of its accepted rules, nor how far these are applicable to the cases which it is attempted to bring under them.

It may be at once admitted that there is a considerable measure of truth in both these indictments, and plenty of room for reform, both as to rules and technicalities, and as to the method of their application. There is great need for a more comprehensive and a more simple and consistent logical theory, and for more keen and careful logical analysis. As will be seen a little further on, however, I do not feel able to accept Mr. Sidgwick's view on some fundamental points.

In Part I Mr. Sidgwick undertakes the task of setting out for the purposes of elementary examinations Formal Logic as he conceives it. It is presented with a slight running fire of criticism, and more than a touch of contempt—*e.g.* we are told (page viii) that "the best reason for knowing something about the old system [Formal or Traditional Logic] is in order to see exactly why modern Logic has been driven to make certain far-reaching departures from it," and on page 1 that "from a modern point of view the central core of [Formal] Logic—the Doctrine of the Syllogism—may be best regarded as a set of rules for playing a certain kind of game with words, and a set of technicalities the function of which is partly to state the rules of the game and partly to explain the methods that have from time to time been invented for playing it successfully." "The new logic," on the other hand, "will not lend itself easily to the arts of the examiner" (page 225).

In his treatment of Formal Logic Mr. Sidgwick is, however, restrained as well as hostile: thus his contempt and reprobation, unmeasured as they may be in themselves, are not unmeasured in their expression. He sets out by enunciating the theorem that the business of Logic is to distinguish between good and bad reasoning. This, he says, is a point on which all are agreed; and he then proceeds to argue that the way to attain the aim of Logic as thus set forth is to turn our attention to Fallacy and the causes of Fallacy—mainly Ambiguity. Men would never, he holds, have troubled about Logic unless they had been cognizant of bad reasoning and had wished to avoid it. And he blames the Old Logic for its evil influence on thought and life, holding it to be still powerful in spite of waning prestige and diminished acceptance.

But when and where, we may ask, does this evil influence come in? I believe it to be indeed very important in some regions of philosophy and theology, as a source of confusion of

thought, *e.g.* in the writings of the late Prof. T. H. Green and in the age-worn difficulties of the Athanasian Creed. But the idea that in England to-day a knowledge of Logic is a widespread source of error seems to me mistaken. Who and where are the persons who are thus misled? If we discount the elementary—the *very* elementary—Logic got up for Responsions and the Previous Examination (and this at the moment promises to become very soon a vanishing quantity), what is left? At Oxford I suppose, roughly speaking, as much Aristotelian Logic as is included in Classical Greats; at Cambridge the dozen or so yearly candidates for Part I of the Moral Sciences Tripos. I believe that at the newer Universities of England and Wales a modicum of Logic is taken annually by a handful of students. Of Scotland and Ireland I do not speak, nor, I think, does Mr. Sidgwick. Besides these there remain the training colleges, but in them Logic (as well as Psychology) *eo nomine* seems at present to have suffered eclipse and to have disappeared from the time-table. In England the vast majority of even educated people (including Honours men) have no acquaintance whatever with Logic, beyond the tiny group of persons interested in philosophical subjects, and of these only a small proportion really care about Logic. If the reason why people go wrong in thought or action has any connexion with Formal Logic, it would seem that it must be due not to their knowledge of it, but to their profound ignorance. Even granting that it is the primary business of Logic to distinguish between good and bad reasoning, is not a theory of good reasoning (which the Traditional Logic aims at giving) the prime requisite for this?

But is it necessary to admit that what spurred men on to frame a Science of Logic was the desire to avoid bad reasoning, any more than what stimulated the grammarian was the desire to speak and write grammatically? Did not theory in both cases follow practice and result from reflection on practice, proceeding rather, in both cases, from a scientific or speculative curiosity than from a desire to correct erroneous practice?

In Part II Mr. Sidgwick insists, in the first place, on the paramount importance of constant care and alertness in the examination of facts, use of names, application of rules—scrupulous attention to the meaning intended to be conveyed by any given speaker or writer—perpetual watchfulness against the snares of ambiguity, and lazy or thoughtless acceptance of the merely conventional value of words. (All this may, of course, apply to the spirit and method of using any system or any collection of rules that may be adopted.)

"What we have to consider," Mr. Sidgwick says, "are the risks of error in reasoning, as science and the better kind of common sense conceive them—mistakes which are important just as far as they do affect our practical dealings with Nature and our fellow men; and chiefly mistakes about the precise *causal* relation between various occurrences" (pages 153, 154). "The most general form of modern difficulties in thought is that of knowing how to interpret some valuable general rule so as to use it as far as it will bear using, but no further" (page 156). There are in Mr. Sidgwick's view two main assumptions—mischievous and mistaken—of the Old Logic: (1) "the uncritical acceptance of the Laws of Thought"; (2) the doctrine "that it is possible and advantageous to separate the Form of reasoning from the Matter." As to the Laws of Thought, he holds that "we must keep ourselves ever prepared to find these Laws *when applied* misleading" (page 162).

The chief argument against the distinction between Form and Matter as conceived by Mr. Sidgwick is that it requires us to assume the terms and propositions used in the reasoning process to be free from ambiguity. "Every syllogism, Logic admits, must have an unambiguous middle term. Very well; *and how are we to know whether a given apparent syllogism has one or not?* . . . until we take the 'material truth' of the premisses into account there is no way of deciding whether we have before us a syllogism or only a syllogistic form vitiated by an ambiguous middle" (pages 163, 164).

In the final chapter of Part II Mr. Sidgwick offers a few "doctrines and technicalities" as a tentative contribution towards a constructive and teachable discipline which he would like to see put in the place of Formal Logic. The technicalities are a brief selection from those furnished in ordinary textbooks. Of the positive doctrines, perhaps the most important is that according to which "any piece of reasoning, however long and complicated . . . is throughout composed of the application of rules to cases" (page 229).

The very interesting and acute discussions of Part II are more attractive and suggestive than constructive or teachable, and seem likely to be somewhat beyond the grasp of ordinary beginners in Logic. Consider, *e.g.*, the list of "concise doctrines" enunciated on page 241.

Indeed, Mr. Sidgwick himself recognizes the greater difficulty which "the new Logic, as contrasted with the old . . . presents to the examiner and, perhaps as yet, to the teacher," and the difficulty is certainly not confined to the teacher, for we are told (page 225) that the pupil has to be made "so familiar with this view of ambiguity that his whole conception of the use of language is affected by it. . . . He has to recognize that what is truth from one point of view may be error from another" (page 233).

In response to Mr. Sidgwick's challenge, I go on to offer a few remarks on his view of the Law of Contradiction.—Where no question arises as to the meaning of the terms in any given case, we are at worst only subject to a vague general doubt expressed in the principle that "all terms are liable to ambiguity and indefiniteness." In any particular case of "A is B," if no one perceives or fears or suspects an ambiguity, then we take "A is B" to mean that, in Mr. Sidgwick's phrase, "A is really B." Since, however, we have no means of distinguishing between what is true and what we take to be true, between what Mr. Sidgwick calls "A that is really A" and "A that is taken for A," he concludes that we can never apply the Law of Contradiction safely, and that this Law is practically valueless. In symbols *qua* symbols there is no ambiguity, but I admit that in cases where the meaning of a proposition is seen to be doubtful—as in "Books are interesting"—it is not possible to apply the Law; similarly, when subject or predicate in a given case is seen to be ambiguous—*e.g.*, "The Kaiser is an apostle of culture," "All apostles of culture advocate respect for art and learning."

But what disturbs us here is the suggested presence of an inconsistency—a breach of the Law of Contradiction. It is, of course, only by clearing up the confusion which causes the contradiction that we can mend matters, but they are not mended until our "argument" will bear the application of the Law—and the object of clearing up the confusion is to make the Law applicable and thus abolish the inconsistency.

I hold that it is generally the suggestion or suspicion of contradiction which first draws our attention to the existence of error or ambiguity, and that, in clearing up the matter, repeated applications of the Law are made. Where we recognize ambiguity, we recognize that we cannot apply the Law until we have cleared up the ambiguity. Where we have no suspicion of ambiguity, we cannot, as Mr. Sidgwick shows, distinguish between "real A" and "so-called A," and unless we can find some criterion, we either (1) have no justification for mistrust in the case of what we take to be A, or (2) we have no justification for trust in any case.

Mr. Sidgwick, as far as I understand, holds that "truth" is always relative to purpose, that we have no other criterion, that all cases are infected with doubt, and that not only is our attainment of truth always piecemeal and relative to a particular purpose, but also and further in each case even this relative attainment is liable to revision and reversal. He says (page 159) that "instead of crying for this moon [the discovery of ideally perfect truths] or sinking into a dead and hopeless scepticism because we cannot get it, we try to make the best of the situation by taking care that our 'truths' are at any rate sufficiently true to serve our purposes. This is made the criterion of the only kind of truth we ever experience or expect. The falsity of any judgment is thus identified with the failure of that judgment to serve some particular purpose. *For that purpose* we find it false, however many other purposes it may satisfy."

Again, we are told (page 157), that "a statement can be true in one sense and false in another—true for one *purpose* and false for another"—but is not this rather a case of *two* statements?

When we clear up an ambiguity and come to an agreement in some case, we are enabled in that case to fulfil our bit of Purpose, and in consequence the A we are concerned with is *taken* by us to be A. But, if we have no further criterion or

test by which we can distinguish what is *taken to be* A from what is *really* A, what ground have we for assuming any A more "real" than A which we "take" to be A? Do we mean by "real" A, anything definitely different from what appears to be A? What *does not* appear to be A is not, of course, what *does* appear to be A—if we so far admit the Law of Contradiction. It is also the case that we recognize error both in ourselves and others, in that what we have taken to be apparent A, we now take *not* to be apparent A. This gives us ground for distinguishing between "apparent" and "not apparent," but not, as far as I can see, for distinguishing between apparent and real. What we apprehend or think of always has reality, I think. Where we go wrong is not in attributing reality to any object of thought, but in assigning to an object qualities or relations which it does not possess.

The criterion relied upon both by Formal Logic and by common sense seems to be chiefly the time-honoured one of self-evidence. We do, no doubt, sometimes find that what we thought self-evident is not self-evident. We make mistakes of application; but this does not discredit the value of self-evidence. Have we any other resource than a fresh application of the same test? Does any rule—does even the Multiplication Table—carry with it an absolute guarantee against its own misapplication?

However, whether or not I am in any given case mistaken in holding that "A is B" is true, it would seem that I am always in every case entitled to say that "If A is B is true then A is not B is not true." If we say that "A is B (1)" and "A is not B (2)" may both be true because B may be ambiguous, then the B which is affirmed in (1) is not the same B which is denied in (2). It may be (1) affirmed and (2) denied that Charles I was good, because (1) he was good *in private life*, and (2) he was not good *as a ruler*. But "good-in-private-life" and "good-as-a-ruler" indicate *different* sets of qualities—qualities which are not even necessarily coexistent. Mr. Sidgwick no doubt admits this; but my point is that we do after all use and rely upon the Law of Contradiction.

Symbols—A, B, &c.—though of the utmost abstractness and generality, are neither ambiguous nor indefinite. They are not liable to the ambiguities of significant words, but care is necessary in their use. Take, *e.g.*, "If A, then C." It is quite illegitimate to apply this to, *e.g.* the elliptical phrase, "If arsenic, then poisonous," which is genuinely ambiguous. As Mr. Sidgwick contends, there is no rule which can be applied blindly and slap-dash on all occasions; also, no doubt, thinkers and discoverers are not perpetually referring to Laws of Thought and Rules of Syllogism, or even to fallacies of *non sequitur*, &c. But no more are great writers of literature always dragging in allusions to grammatical rules, or great artists for ever referring to laws of perspective and anatomy, or great composers perpetually quoting the laws of harmony and counterpoint. Still, the laws are there, and the great workers and thinkers conform to them.

What the author is fundamentally concerned about is that writers, thinkers, and investigators should be alive to the hindrances to clear thinking and to progress in knowledge which are due to the less obvious ambiguities of language and to the rough or careless application of conventionally accepted rules. The interest and originality, the subtlety and sincerity of the discussions of Part II in support of Mr. Sidgwick's view must be recognized by all competent readers. He gives us a "counsel of perfection" as to the spirit and method of application of any rule or system which aims at the guidance of thought. My chief disagreement with him is as to the relation respectively of (1) Formal Logic, and (2) Pragmatist Logic to the whole Theory of Knowledge.

E. E. Constance Jones.

Studies in the Minimum Wage: the Establishment of Minimum Rates in the Chain-making Industry. By R. H. Tawney. (G. Bell.)

This is an instructive and well written little book on a difficult problem. Though its method is mainly descriptive, yet the graphic accounts of the industrial conditions and lives of the workers render it a very cogent argument for the interference of the State for the determination of rates of wages in certain conditions; and its conclusions are strong evidence that such authoritative measures of regulation are not only beneficial to the labourers, but that they do not conflict with economic principles in circumstances such as those which formerly obtained in this home industry.

It was in the year 1909 that, after much discussion, the Trades Board Act was passed, by which the Government set up machinery for fixing a legal minimum wage in certain trades, when investigation showed that the workers were incapable of combining to secure a reasonable "living wage." These so-called "sweated industries" were mostly handicrafts employing women and children, and, in the first place, the regulation was limited to women's tailoring, paper box-making, machine lace, and hand chain-making.

Mr. Tawney has made a very thorough investigation of the last-named occupation, which is carried on in a group of villages, of which Cradley Heath is the centre; and he gives a very vivid and exhaustive description of the methods of the industry and the earnings and economic conditions of the employees, both before and after the institution of the Trades Board. He brought to his task sound economic knowledge, powers of observation and of analysis. His narrative is very illuminating and his reasoning convincing. It need scarcely be said that the wage problem is one of the most intricate problems of economic inquiry, and one that calls for a wide grasp of economic principles and perspicacity of judgment. Mr. Tawney proved himself well equipped for the task, and his little book is a real contribution to a social problem of vital importance. It justifies the creation of the Trades Board and the adoption of its methods in cases where the conditions described are found to prevail. The book is one of a series of short treatises on problems of poverty; it will commend the series by its sanity and careful methods of inquiry.

Clio Enthroned. A Study of Prose Form in Thucydides. By Walter R. M. Lamb, M.A. (10s. net. Cambridge University Press.)

In this able study, Mr. Lamb brings much fresh material to bear upon old problems of Thucydides, and suggests some interesting lines of research. Everyone who has read Thucydides has observed the strange variation in his style from plain straightforward narrative to the most elaborate and artificial subtlety. Broadly speaking, the explanation is simple. Thucydides is an artist working with an instrument of which he is not fully master, and, when he makes a special effort to be emphatic and rhetorical, he is apt to become obscure. Mr. Lamb sets out to explain this variation in detail, and, by a close examination of the fragmentary remains of the earlier prose writers, shows us the growth of form in Greek prose and the development of the rhetorical devices and the eternal antithesis, which we find in the more elevated, and consequently more difficult, parts of the history. That we may better understand the aim of the historian and his choice of method, his mind and general outlook are sketched. In this and other portions of the book the author combats very effectively a theory recently put forward that Thucydides was working on a definitely "tragic" plan, and arranged his fact to suit his dramatic purpose. Mr. Lamb has little difficulty in demonstrating the trustworthiness of the main features of the history, and shows that a double scheme runs through the work. Thucydides writes, first, as a military annalist, which accounts for the division of his narrative into summer and winter campaigns, and, secondly, as an artist striving to illustrate motive and character and to express himself in the most permanent and effective way. Hence we have a clash of motives, and formal unity has sometimes to be sacrificed to admit of digressions and additions. Of these the speeches are the most important and are meant, it is suggested, as typical examples of how the various situations "reasoned themselves out." In a detailed study of the development of the "period" the fragments of early prose writers are considered, and the loose and confidential manner of Herodotus is contrasted with the closely reasoned logical style of Hippocrates, which is shown to have much in common with the narrative style of Thucydides. In a chapter on the Rhetorical Invasion the use of assonance, repetition, and antithesis is traced through Democritus, Protagoras, Herodotus, and the works of the Iatrosophists to its culmination in Gorgias and the Sophists. The book concludes with a study of rhythm in Thucydides and a tentative application of the results to some questions of the text. A very in-

teresting feature is the prevalence of the "heroic" cadence. The author finds no less than sixty places in the history "where the familiar close of the epic line can be heard producing, in a greater or less degree, a chiming uniformity at the end of adjacent clauses." Other cadences—pæonic, iambic, and trochaic—are detected to a varying degree. The book is full of very sound and thorough scholarship, but suffers somewhat from a certain looseness of structure. The treatment of the "mythistoric" theory, which is perhaps the most interesting part of the book, scarcely suffices to bind the various parts together.

A Schoolmaster's Apology. By Rev. Cyril A. Alington. (3s. 6d. net. Longmans.)

This is a book that should glad the heart of Mr. H. G. Wells. Here at last we appear to have the "authentic man" that the author of "The War of the Worlds" has been longing for. Mr. Alington is a man first, and a schoolmaster only in the second place. He has quite obviously written this book to please himself, and with no professional axe to grind. He does not pose as a expert. In fact, one is inclined to say that he despises experts, only that would be unfair, for he despises nobody. This is one of his great merits. For example, he can write about the public schools without being superior. He is full of limitations, if we are to believe his own evidence; but he is full of the kindliest insight if we are to believe our own. He takes an honest pride in maintaining that the public schools are doing admirable work, but he does this without making it appear that other schools are not. In spite of his disclaimer of all expert knowledge, he writes of the public schools from within. Indeed he never deals with matters with which he is not familiar, and has the charming quality of writing only about what interests him. He claims explicitly the right to digress, and makes no scruple in exercising that right; yet he always carries with him his reader's sympathies. However far afield he travels, he always makes it worth our while to follow him. His chapters are very short, and very much to the point, however remote that point may be from what one ordinarily expects in a book with this title. His style is peculiarly attractive and as far removed from the conventional notion of a schoolmaster's work as could well be. He complains that all through his life he has "suffered from those who would not begin at the beginning." In his own case the beginning is all right: it is the going on that is the trouble. His interests are mainly literary and religious, and the book falls naturally into two parts: the first 113 pages deal with Literature, the remaining 89 with Dogma—both of course in relation to school work. The literature, however, is brought more directly into touch with the classroom. When our author takes up religion he appears to get into a rarer atmosphere, and a good deal of his work might have been written by and for clergymen who have no special concern with school life. But Mr. Alington is as broadminded in dealing with religion as he is in treating of the more technical aspects of his school work. He has no love for mathematics, and not much for science, yet he writes of his colleagues who teach these subjects in such a way as to make them feel that they too have a place among the elect.

In short, the book is literature. The first 113 pages deserve to rank along with D'Arcy Thompson's "Day Dreams of a Schoolmaster," and with the "Upton Letters." They have the same easy swing, the same personal grip, while they have a genial perversity that is all their own. One understands the easy abandon and the natural charm of these essays when one reads the alarming confession that they have "been written, with some trifling exceptions, within a week." But the work of a week contains the essence of the thought and observation of ten years, as the dedication suggests. We hope that Mr. Alington will not allow another decennium to elapse before he gives us another week's work. Our professional literature hungers for just such contributions as his.

The Great Problems. By Bernardino Varisco, Professor of Theoretic Philosophy in the University of Rome. Translated by R. C. Lodge, M.A. (10s. 6d. net. Allen.)

Prof. Varisco, though now for the first time (we think) introduced to English readers in an English dress in the excellent "Library of Philosophy," has been sending forth a volume every year or every eighteen months for the last dozen years. Already mature—he was born in 1850—he did not stereotype his thought in 1900: he is still maturing indeed, and frankly, if not without reluctance, admitting change of views. There is no certainty, then, that his present conclusions are final: the probability, in fact, is the other way. It is always interesting, however, to follow the development of the thoughts of men of the calibre to tackle the Great Problems. The Great Problems constitute ultimately the one Problem of Philosophy. Students will regret to learn that the author acknowledges that the present exposition leaves the Problem unsolved: it is only "formulated in such a way as to render it clearly intelligible," and some further elucidations are supplied in a considerable Appendix. Full clearness and the final justification of the doctrines now presented "can only result from a reconstruction or a historical deduction," which will follow in another volume. Meantime Prof. Varisco discusses sense-perception, memory, feeling, action, cognition, values, reality and reason, and Being, with a view to explain this somewhat unintelligible Universe. He concludes that he has proved beyond further dispute the unity of Being—that is, the existence of a Universal, Rational, Eternal, Divine, which penetrates things; that he has extirpated Materialism of every kind and coarse Atheism; that he has eliminated the common conception of creation, "according to which God and the world would be outside each other"; and that a divine principle, uncreated and necessary, is immanent in the universe and in us. The final step has yet to be taken. The general line of treatment is a good deal reminiscent of Lotze. The particular arguments require to be closely traced: the author is so fertile in illustration that the links may be only too easily overlaid, and his vivid and volatile style, with cumbersome repetitions, tends to operate as a distraction. It is puzzling to understand what the author means by saying that he "writes for those who have knowledge, not for beginners." The treatment is markedly elementary. Without endorsing Prof. Varisco's statement that "my book would have had to be at least twice as long to give my readers the means of assigning my doctrine the place which befits it among others" (page 283)—for the book might have been more effective if only half as long—we yet take advantage of it so far as to suspend an explicit judgment till we see the next volume. The translator, we should say, has done his work remarkably well—by no means an easy task.

Musical Interpretation. By Tobias Matthay. (5s. net. Joseph Williams.)

The present book, like the majority of Mr. Matthay's works on Pianoforte Teaching and Playing, should be read by all who teach or study that instrument. Pianoforte teachers who think have long since made the acquaintance of the various books by this author. One cannot say that all find themselves in absolute agreement with him on all points, but—when one thinks of the numerous pupils of his who have achieved success, either on the concert platform as soloists or in the studio as teachers—one must admit that his method is productive of wonderfully good results in the shape of true musicians.

"Musical Interpretation" is the embodiment in book form of a series of lectures delivered at various times and in various places by Mr. Matthay. These lectures are in turn the embodiment of his lifelong experience in pianoforte teaching. It is a particularly fine book for all teachers, especially such as may be located "in the wilds of the provinces," and consequently out of touch with the great musical world of London. The book provides abundance of material for thought in what is a comparatively little understood side of musical performance. The section on Rubato Playing is exceptionally good; never have we seen such a careful analysis of it. So many, even of our best pianists, do not understand this very elusive principle, so subtle, yet so productive of good effect, that this portion of the book is very welcome.

Another important section is that on the Laws of Pedalling. This is also a point which is, as the author remarks, "disgracefully neglected by the average teacher and pianist." Here, again, is a full discussion of the right and wrong

methods of pedalling, with reasons all the time. In fact, this might be taken as the key-note of the whole book, "reasoning and thinking," for Mr. Matthay insists all the time upon careful thought.

When the lectures were first delivered the author illustrated his remarks by musical excerpts played on the pianoforte. Unfortunately, the actual performance cannot be reproduced for the benefit of all readers; but to supply in some measure the deficiency, his illustrations have been printed in music type.

Although primarily intended for pianists, executive musicians of all kinds, whether instrumentalists or singers, will find in this book much to help them to a better conception of the true meaning of musical interpretation.

Perception, Physics, and Reality. By C. D. Broad, M.A. (10s. net. Cambridge University Press.)

As described by the author, this dissertation, of which the greater part was submitted at an examination for Fellowships at Trinity College, Cambridge, is "an inquiry into the information that physical science can supply about the real." With considerable care, if somewhat elaborately, the nature of reality is investigated as part of a more general study of the way in which the scientist, more particularly the physicist, regards the universe. The arguments against naive realism independent of causation are primarily discussed, followed by an examination of causality, with particular reference to the objections that have been brought against causal laws by Lotze and Bradley. The author frequently makes use of terms of probability instead of certainty in which to frame his conclusions. The form of doctrine known as Phenomenalism receives careful review in a short chapter, while the causal theory of Perception is granted rather more extended treatment. In a final chapter devoted to a discussion of Newtonian mechanics, the problems of absolute or relative motion and the reality of force are investigated.

It is a scholarly work, to derive the greatest benefit from which requires a certain amount of close study, but the time spent upon its perusal will be amply repaid.

OVERSEAS.

The battle of "The Woman Peril in American Education" goes merrily on. Mr. Leonard M. Passano concludes his September article in the *American Educational Review*, with the sentences "Dissatisfaction with the employment of women teachers for boys has existed for years, has been growing, and is now widespread. The chief reason why women have not before now been superseded by men in such positions is the cost. Men teachers, being worth more, must be paid more, and it is notoriously difficult to make a community pay for the best education as long as a makeshift can be found at a lower cost." The question is about to become more acute among ourselves, since the places of those teachers who have joined the colours will almost inevitably be filled with women. It is true that in a letter to *The Child*, for October, Miss Alice Woods suggests that the vacant places should be supplied by "those experienced secondary teachers whom the present war has thrown out of work." We hope this does not mean that the elementary teachers are to have the monopoly of answering Lord Kitchener's appeal. We have no doubt that all grades of teachers will do their duty, and that accordingly the women teachers will have an exceptional opportunity of showing what they can make of boys.

There appear to be great heart-searchings among the Americans regarding the government of their Universities. The Science Press of New York has issued a volume written by various authors and entitled "University Control." The *Educational Review* editor instructed his reviewer to make "a candid examination of the volume with a view to emphasizing any points of strength that it may have rather than its obvious weaknesses." In spite of this suggestive recommendation to mercy, the book suffers severely at the hands of the critic, who sturdily maintains against the authors of "University Control," "that American methods and American conditions are far in advance of those existing in Germany, in France, in Great Britain, or indeed anywhere else in the world. In those countries this fact is pretty generally admitted, and American methods and conditions are pointed to as models of what they would gladly introduce at home." Now we know. It is not difficult to imagine the feelings of an Oxford or Cambridge man when he reads this final relegation to the hinder benches. His rage may be a little soothed by finding that the great German Universities, by which America used to swear, are brought under the same condemnation. These institutions "were at the height of their glory from about 1830 to about 1890." Since then they have fallen from their high estate, and we in England have little reason to challenge the statement. The origin of the book under discussion appears to be certain troubles that have arisen between professors and governing bodies. The *Educational Review* critic takes up the position that the professors have as much power as is good for them, and that if anybody stands in need of sympathy in the matter it is the University President. It is humiliating to find that in another part of the magazine the editor is able to refer with some satisfaction to a recent squabble in one of our English Universities. The American reviewer feels justified in claiming that the American professor's "tenure is the most secure in the world." We wonder if he has taken the Scotch professor into account: has he ever heard of a certain Prof. Johnston?

Following the immortal example of Mr. Silas Wegg, Prof. William Stern has dropped into poetry, and has produced a *Psychologenlied* that *The American Journal of Educational Psychology* tells us "was sung with great *éclat* at the *Dritter Deutscher Kongress für Jugendbildung und Jugendkunde*, in Breslau. The *Journal* goes out of its usually staid way to supply a translation made by Mrs. James Burt Miner. We decline to adjudicate the blame between Prof. Stern and Mrs. Miner. We merely present a stanza that is typical of the other seven:—

CHORUS OF PSYCHOLOGY'S ENEMIES.

Psyche, goddess pure, so sad your story,
You butterfly so frail and shy,
Your heavenly color's paled,
In the dark room, in silent laboratory
With apparatus you're approached,
With calculus assailed.
O, tell us how you fare, my child: Who "Ca(n)ttell?"
You "Dearborn," "Angell," "Dewey," "Wilde,"
On "Sea-shores" of the eternal night,
Maltreated wight?

We have filled up the charge sheet. It is for the proper authorities to pass sentence and assess the damages.

We learn from a correspondent that the British Association meetings fell rather flat in Australia. This is not to be wondered at in the circumstances. In addition to the War there was the damping fact of the death of an important University official at Sydney, as a result of which several of the functions at the University had to be cancelled. Our correspondent tells us that to the Australians it appeared that the educational section was maintained mainly for the benefit of two well-known professors who do not see eye to eye, but who enjoyed the opportunity of getting a fresh audience for their more or less revolutionary views.

The English Journal (Chicago) maintains its reputation as a very useful specialist magazine. Its September number has an excellent article on "Social Motives for Composition." One of the most interesting of the discussions at the meeting of teachers of English at St. Paul this year was on "The Separation of Literature and Composition." It was argued that so far from helping each other these two actually interfered with each other. They are in reality the two different aspects of one process. Composition is "making the inner outer," and the study of literature "making the outer inner." But both cannot be carried on at the same moment. "At the conclusion of the discussion the idea of separating literature and composition was very generally approved."

We have had above an example of American complacency in estimating their institutions. From *The School Review* (Chicago) we get an English parallel as it presents itself to American readers. Dealing with "Standards in American Education," the writer tells us that he had an interview on the subject of examinations with an official of the English Civil Service Board. The following is the version given of this official's views:—

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the whole family sets about the task of training him for the examinations. While the common members of the family play and resigu themselves to lives of obscurity, the picked representative labours and sacrifices and forgoes all the petty pleasures of innocent dissipation. By and by this selected boy gets a scholarship. His work doubles and his mind grows. He gets another. Now he goes to Winchester and lives with a picked group of kindred souls selected from all England. He needs no stimulus but the hope of new scholarships. He keeps his masters busy finding him tasks and examining his well-nigh perfect productions. The reality of his duty as a superior citizen is so vivid to such a boy in such a place that one naturally pauses to ask what there is like it in America. The answer sounds on the whole rather discouraging. There is nothing like it.

The reorganization of the relations between the elementary and the secondary schools goes on apace in the States. At present the ordinary age for passing from the elementary stage to the secondary is at fourteen or later. The new arrangement that is finding favour is to make the transition at the age of twelve. This newer form is the so-called 6–6 year plan. The University of Michigan has just adopted a scheme by which this arrangement will be encouraged, for it must be remembered that the connexion between the Universities and the schools is in many States much closer than in England. It would seem that what is called the Grammar School Grade may disappear entirely in favour of the new arrangement.

Teachers are getting accustomed to the exorbitant demands made upon them by the socialist philosopher, so they will probably not be surprised to learn that the Country Life Commission appointed by President Roosevelt asserted (on page 53 of its report) that "The schools are held to be largely responsible for ineffective farming, low ideals and the drift to town." Edward J. Ward tells us that if the people are to be attracted to remain on the land much must be done for them. "The initial requirement," he says, "will be leadership. It will take a man and a woman. Two are enough to start with." Naturally the only person that is suggested to the mind of Mr. H. T. Lewis, of the University of Idaho, is the teacher. "Who better than the teacher can initiate this movement? Non-sectarian, a prominent figure, with the results of the survey in her hands, and adapted by training to lead, she is pre-eminently fitted for the task." It is flattering, but does not Mr. Lewis ask a good deal; are not his friends just a little exacting?

GENERAL NOTICES.

RELIGION.

"Cambridge Bible."—*Jeremiah and Lamentations.* Edited by A. W. Streane, D.D. (3s. net. Cambridge University Press.)

This volume seems better adapted for the purpose proposed by the series than some of the companion volumes we have noticed, which go beyond the needs, and indeed the capacity, of young students. Dr. Streane has given us a useful, clearly arranged commentary, without any unnecessary display of the learning on which it is founded. The introduction embodies the results of the important investigations made by German and English theologians during the thirty years' interval since this commentary first appeared. There are three maps and a good index.

Ecclesiasticus. Edited by W. O. E. Oesterley, D.D. (3s. net. Cambridge University Press.)

This scholarly edition may be commended to the notice of students who are specializing in the history of theology. But "Ecclesiasticus" is a book full of interest for the general reader too, and the luminous chapters in the Introduction on the teaching of the book, on Ben-Sira's doctrines of God, and of the nature of wisdom and its connexion with the law, on his doctrines of Sin and Atonement, and on his "wonderful knowledge of human nature," may well be a revelation to the lay reader not interested in questions of pure scholarship. In a future edition it would be well to verify the references; we noticed several slips in the few cases where we examined them.

St. Luke in Greek. By W. F. Burnside, M.A. (3s. net. Cambridge University Press.)

The Cambridge University Press are to be congratulated on this edition of the Gospel in Greek. In addition to the usual sections about the sources, outlines, and characteristics of the Gospel, the editor reprints from Sir Arthur Hort's "St. Mark" a valuable sketch of the history of the Jews during the four centuries before Christ, more especially of the Maccabean rule and the Herodian

dynasty, and a short account of the religious thought current in the time of our Lord. The notes appear to be unusually interesting and helpful. While dealing adequately with the language and grammar of the Gospel, and with its relations to the other Gospels, the author has made it his main business to explain, and in many ways to illustrate, the teaching of the Gospel. The book is supplied with maps, and with a Greek and General Index, and will be very acceptable to students.

"The Century Bible."—*The Book of Daniel.* Edited by R. H. Charles, D.Litt., D.D. (Cloth, 2s. 6d. net. Jack.)

This is the thirty-fourth volume of the "Century Bible," and completes the series, the object of which is to bring the results of the latest critical research within easy reach of all who are interested in the Bible. The general editor has been fortunate in securing for his latest volume the services of so eminent a scholar as Canon Charles, who has been long recognized as one of the leading authorities on the history and literature of the centuries immediately preceding the Christian era. In the course of a learned introduction, Canon Charles states and comments on the problems connected with the liturgical character of the Book of Daniel, its versions, and date. He gives reasons for believing that the Book was written after 167 B.C. and before 165 B.C., for regarding the work as pseudonymous, and holding that "the brilliant visionary to whom we owe the Book of Daniel issued under the name of an ancient writing this Book of transcendent worth, not only to his own, but to all after ages." The notes, it need hardly be said, display great critical acumen, and the historical "reconstruction" of the story will prove of great interest. Much help is afforded to those studying the book by the detailed index.

"The Cambridge Bible for Schools and Colleges."—*The Books of Judges and Ruth.* Edited by G. A. Cooke, D.D. (2s. 6d. net. Cambridge University Press.)

A very learned and elaborate commentary. We commend to the critical reader an essay in the introduction to the Book of Judges, in which the editor endeavours "to determine the age and affinities of the compiler" and "to distinguish the stages by which the present book grew into shape." A special feature of the book is the attention paid to topography and the vivid reconstruction of primitive society produced by the incidental notes on ancient myths and folklore and on the origin and significance of ancient customs. The edition is supplied with a map and index.

The Faith of the Old Testament. By Rev. Alexander Nairne, Professor of Hebrew at King's College, London. (2s. 6d. net. Longmans.)

The aim of this book, to serve as one of "The Layman's Library Series," is clearly kept in view. While it is scholarly it is also simply and non-technically written, and well illustrates the statement made by Dr. Burkett in his preface that "sound learning is not necessarily either dull or spiritless." It is not in the least a mere textbook, epitomized and detached; but those aspects of the subject which are treated are dealt with fully and sympathetically, and one feels oneself in personal and inspiring contact with the author's mind. While the book is frankly written by an Anglican for Anglicans, its breadth of view will make it acceptable to a much wider public. In the Introduction the books of the Old Testament are reviewed, with the object that the reader may, "though not a critic, recognize the four styles of Hebrew literature and find they correspond with stages in Israel's life." At its end there is, instead of the unhelpful book *list*, a short account of some of the more notable books on the subject. Chapters II and III deal with the Early Prophets and Ezekiel. The treatment of the latter is particularly interesting, the author regarding him as the real founder of the Jewish Church and Theology. "What he . . . started grew into Leviticus and the high churchmanship of the Chronicles, then into the legalism which St. Paul opposed." Dr. Nairne goes on to show how the Creed and Church which Ezekiel founded express themselves in three diverging ways, viz. the Apocrypha, Daniel and other Apocalyptic literature, the Psalter. These form the subject of the last three chapters.

HOUSECRAFT.

Baby Clothing. By Wilena Hitching. (Chambers.)

As the sub-title explains, the book is intended for mothers, nurses, teachers, students, and older scholars of primary and secondary schools. With the book is included a whole series of paper patterns, also 26 diagrams and 40 photographs of the actual garments. Everything is so clearly explained that the making of baby clothes becomes sheer delight, even to those not well up in the art of cutting out and planning garments. The clothes recommended are thoroughly hygienic, and according to the latest ideas. Any young mother may feel perfectly safe in dressing her baby according to the principles laid down by Miss Hitching.

TECHNOLOGY.

Gearing. A Practical Treatise. By A. E. Ingham. (5s. net. Methuen.)

Gives a clear and well arranged outline of the main principles on which the correct design of spur, bevel, worm, spiral, and helical gearing is based, and explains the modern approved methods adopted for their proper construction. Illustrations and diagrams are especially good and clear. Several tables and charts are included for the purpose of simplifying calculations. Any one requiring information on this special branch of engineering work will find this book an extremely useful and valuable asset.

MUSIC.

Part Songs. By Dr. Ernest Walker. No. 20. (3d. Joseph Williams.)

Two very short part songs for three trebles. The sad poems by Herrick, "An Epitaph upon a Virgin" and "Upon a Child that Died" are set to appropriate music.

The Song of the Shepherd. Arranged by A. C. Bunten. (3d. Joseph Williams.)

This is an arrangement, for trebles in two parts, of an old French musette dating from 1672. The pianoforte part has been carefully edited, and the English words, by the arranger, made to fit the music splendidly.

St. Cecilia. Part Songs for Treble Voices. Edited by Florian Pascal. No. 13: *Winter.* Music by Edgar L. Bainton. No. 14: *A Chill.* Music by E. Bristow-Farrar. (3d. each. Joseph Williams.)

These two new numbers in the twelfth series of the above collection are settings of two poems by Christina Rossetti. Will be found useful by those seeking fresh works for two-part treble choruses.

(1) *When the Sun is Setting;* (2) *Before the Dawn.* Two Lyrical Poems for Pianoforte. By Walton O'Donnell. (Joseph Williams.)

Both pieces demand a fair degree of technical facility, and are somewhat difficult of interpretation, but are quite interesting. The rhythm of No. 1 is somewhat uncommon, commencing, as it does, in $\frac{5}{8}$ time and making frequent changes to time signatures even more uncommon. In some few places the composer gives $\frac{3}{4}$ and $\frac{6}{8}$ as alternative time signatures. Surely there is a big difference! The second piece is in $\frac{12}{16}$ time throughout. A pianist well equipped technically and emotionally will find much to interest him in both compositions.

The Making of Viola. Cantata. Words by Francis E. Thompson. Music by Edgar L. Bainton. (1s. net. Joseph Williams.)

A delightful allegory on the birth of a child, set to tuneful music. The whole makes a useful short cantata in two parts for treble voices.

Seven Rhythmic Dances for Pianoforte. By Emile Jaques-Dalcroze. (2s. 6d. net. Joseph Williams.)

These pieces are evidently planned for use with the composer's widely discussed system of Eurhythmic exercises. Monsieur Dalcroze himself is wont to extemporize the accompaniments to his various rhythmic dances, but for teachers adopting the method who lack facility in extemporization these compositions should prove most useful.

Four Lectures on English Song. By W. Fothergill Robinson, M.A. (1s. Oxford: Sydney Acott.)

The subject-matter of this book was delivered as a series of four lecture recitals at Oxford and elsewhere, the lecturer himself being the vocalist. From press reports of the time one learns that the illustrations were all sung in a truly musicianly manner, and that Mr. Fothergill Robinson is an accomplished and finished singer. The author was induced to issue the lectures in book form, so that the results of his long and careful research might be available to a larger circle of musical folk than could be possibly reached by the lectures themselves. The book is at once accurate, interesting, and well written; those who desire to increase their knowledge of the history of the songs of our country would be well advised to study this little work. At the end of the volume are given the programs of each illustrative recital. These programs were most judiciously chosen, and consist of songs thoroughly representative of the various periods with which the author deals.

SCOUTING.

Surveying for Schools and Scouts. By W. A. Richardson, B.Sc. 1914. (1s. 6d. G. Philip.)

There is undoubted need for a textbook such as the one before us, and Mr. Richardson is clearly a suitable person to write it. Throughout there is evidence that he is giving in detail methods that he has employed with boys—presumably at the Harrow County School. Practical surveying of the nature here disclosed is a useful handmaid to mathematics and geography (the latter especially), and the treatment of it given recommends it the more, since the instruments employed are almost always such as a boy could himself make in the school workshop. The course, therefore, is practical throughout. To turn to the second part of the title. Numerous are the scout badges, but they vary greatly in value. The qualifications (which might have been given) for the "surveyors" have been well thought out, and the scout who masters them has done really useful work. Even if they could find the time, few scouts, except those attending secondary schools, would be able to take the whole

course here prescribed, although the subject is treated in a simple manner; but the scoutmaster or instructor will be able to pick out the chapters which cover the badge requirements, and work out with his boys suitable exercises from the many well chosen ones that are given in the book. We have noticed one or two slips, chiefly typographical, which will, no doubt, be corrected in another impression.

NATURE STUDY.

The Country Month by Month. By J. A. Owen and G. S. Boulger. 1914. (6s. net. Duckworth.)

Every lover of the countryside will be delighted with this carefully written book of 492 pages. In style we are reminded somewhat of Richard Jefferies's works, and the chatty accounts of the characteristics of plants and animals, freely interspersed with the folk-lore of the subject, never allow the interest of the reader to flag—from beginning to end. Birds and plants are the theme of far the larger part of the volume. That Prof. Boulger is responsible for the botanical side of the subject is sufficient guarantee for what is told in connexion with plants, both flowering and cryptogamic. Mrs. Owen has charge of the animal side, and the birds and mammals are treated with equal success. She has, comparatively speaking, little to say about the lower animals, and apparently they have not her full interest. Consequently a few remarks (very few), chiefly in connexion with insects, need a little revision. For instance, it is not safe to say that the majority of insects pass the winter in the egg stage; the Red Admiral and the Painted Lady probably very seldom hibernate here, and so are scarcely ever seen in February; the caterpillars of the large and small white butterflies do not resemble one another; the earliest blue is not the common, but the Holly, Blue. It should be stated that there are twelve beautiful coloured plates—nine of birds, three of flowers—and twenty equally fine full-page photographic illustrations.

FRENCH.

Junior French Reader. By E. Renault. (1s. 6d. Arnold.)

The contents are 50 anecdotes, occupying 120 pages. Each anecdote is followed by Direct Method questions in grammar and subject-matter, phrases and connected passages for retranslation, and subjects for free composition. Is this form of question useful (page 3)?: "L'armée française.—Où se placent les adjectifs de nationalité? Commencent-ils par une majuscule?" Or this (page 100): "Traduisez 'can' dans cette phrase—'(can) il lire'?" &c. What of the English of this passage (page 4): "In 1741, as soon as Lieutenant-Colonel Chevert had reached Prague, he set up a ladder against the wall, and told a particularly brave sergeant to make towards the ladder and ignore the three challenges of the sentinel, who would fire, but miss the sergeant and be immediately shot by him"? See also the opening sentences on pages 93 and 100. The strong point of the book is an air of vigour and alertness.

Fabliaux et Contes du Moyen Age. By J. E. Mansion. (1s. 6d. Harrap.)

There are 125 pages of text, 5 of notes, and 41 of vocabulary. These are old tales retold by M. Tassot, with M. Robida's illustrations. Both tales and illustrations are good. The notes are not altogether satisfactory—*e.g.*, the treatment of the infinitive (page 130) and *vouloir*, &c. (page 132); or this—"Lombardy was a great plain of Northern Italy, of which Milan was the capital." The phonetic transcript is occasionally given in the vocabulary and might be given oftener.

Soirées chez les Pascal. By F. B. Kirkman. (6d. Black.)

There are 48 pages of text and 5 coloured illustrations—fairy tales, with a few explanations. The retelling of the tales by the children is a happy thought, and the book is attractive.

PUBLICATIONS RECEIVED.

EDUCATION.

A Schoolmaster's Apology. By the Rev. Cyril A. Alington. Longmans, 3s. 6d. net.

Principles of Education. By Elizabeth M. Sewell. New Edition, abridged and revised, with Preface by the President of the Mothers' Union. Longmans, 1s. net.

Froebel as a Pioneer in Modern Psychology. By E. R. Murray. George Philip, 3s. 6d. net.

LATIN.

Macmillan's Elementary Classics.—Noctes Latinae. Written, adapted, or arranged by Walter Madeley. 1s. 6d.

Rivington's Graded First Latin Books. Book III. 1s.

Fabulae. By R. B. Appleton. Bell 2s.

FRENCH.

Bell's Sixpenny French Texts. — (1) Le Capitaine Pamphile (2) Contes Fantastiques (E. A. Poe); (3) La Rose Rouge et Le Curé de Boulogne; (4) Quatre Contes par Jean Macé.

Cassell's Miniature English-French Dictionary. 6d. net.

A French Picture Vocabulary: together with a German Vocabulary. By J. H. B. Lockhart. Illustrations by George Morrow. Bell, 1s.

Harrap's Modern Language Series. — (1) La Belle Nivernaise. Edited by W. M. Daniels. 1s. 6d. (2) The Essentials of French Grammar. By C. W. Bell. 2s.

Single Term French Readers. By B. Minssen. Term V. Rivingtons, 1s.

GERMAN.

Bell's Simplified German Texts. Edited by F. W. Wilson.—(1) Frau Luna. Von Ottilie Wildermuth. Illustrated by Gertrude Lindsay. 1s. (2) Die Geschichte von Kalif Storch. Illustrated by Gertrude Lindsay. 1s. (3) Zwei Geschichten für die Jugend. Von Robert Reineck. Illustrated by Gertrude Lindsay. 1s. [These three volumes are intended for pupils of from thirteen to fifteen years of age, and are known as Section A.] (4) [Mainly intended for pupils who begin German at fifteen or later.] Bilder aus der Neueren Deutschen Geschichte. With map. Section B. 1s.

Lichtenstein. Von Wilhelm Hauff. Edited by G. W. Thompson. Ginn, 4s.

German Prose Composition. By J. A. Chiles. Ginn, 3s.

Reformlesebuch. By W. R. Price. Ginn, 3s. 6d.

The Adventures of Baron Münchhausen. Adapted for schools, and edited by W. H. Anstie. Bell, 2s.

ENGLISH.

The Cambridge History of English Literature. Edited by Sir A. W. Ward and A. R. Waller. Vol. XI: The Period of the French Revolution. Cambridge University Press, cloth 9s. net; half morocco, 15s. net.

An Introduction to English Medieval Literature. By C. S. Baldwin. Longmans, 4s. 6d. net.

Oxford Garlands —Patriotic Poems. Selected by R. M. Leonard. Milford, 7d. net.

English Grammar and Composition.—Part III: Middle School English Composition. By George A. Twentyman. Rivingtons, 2s. 6d.

English Composition. By R S. Bate. Bell, 3s. 6d.

Macaulay's Lives of Bunyan and Goldsmith. Edited by J. H. Boardman and Ivor B. John. Black, 1s.

Stories of Greece and Rome. By Hilda Johnstone. Longmans, 1s. 6d.; thick paper, 2s. 6d.

Bell's Annotated English Classics.—Spenser's Faërie Queene. By S. E. Winbolt. 1s. 6d.

Tales Old and New. Third Book, 1s. 3d.; Fourth Book, 1s. 4d. Cassell.

Bell's Shakespeare for Schools. Edited by S. P. B. Mais, with illustrations by Byam Shaw. Hamlet; Macbeth; Twelfth Night. 1s. each.

English Literature for Schools. Edited by Arthur Burrell.—(1) Early Voyages from Hakluyt. (2) Selections from Old Chronicles of the English People. Dent, each 6d.

The "A.L." Welcome Readers.—(1) Grade P.A, ages five to seven, 6d. net. (2) Book IA, ages six to eight, 7d. net; Book IIA, ages seven to nine, 9d. net. And several other volumes for older children. E. J. Arnold.

The "A.L." Old Time Tales Illustrations.—A Series of Coloured Illustrations of Nursery and Fairy Tales, 27 in. by 19 in. Single tableau, unmounted, 1s. 6d.; set of three tableaux, 4s. Also issued, mounted on calico, with rollers and varnished. E. J. Arnold.

Fairy Tale Plays. By Kate Underwood. E. J. Arnold, 2s. net.

Teaching of English by the Direct Method. Teacher's Book, 2s. net; Pupils' Books, in three parts, each 4d. E. J. Arnold.

HISTORY.

A Picture Book of English History. Compiled by S. C. Roberts. Vol. I: from the Earliest Times to 1485 A.D. Cambridge University Press, 3s. 6d. net.

A History of England and the British Empire. In 4 vols. By Arthur D. Innes. Vol. III: 1689 to 1802. Rivingtons, 6s. net.

The Story of Mohammed. By Edith Holland. Illustrated by M. M. Williams. Harrap, 1s.

A Short British History. Period I: to 1603. By W. S. Robinson, Rivingtons, 1s. 4d.

Peeps at History.—Ireland. By Beatrice Home. Illustrated. Black, 1s. 6d. net.

Preliminary History of England. By M. K. Elliott and M. S. Elliott. Clive, 2s.
A History of Great Britain. By James Munro. Part II: 1485 A.D. to 1716 A.D. Oliver & Boyd, 1s. 8d.
Notes on the "A.L." History Helps. By T. H. Hartley and J. A. B. Jehir. Books I, II, III, and IV. E. J. Arnold, each 1s. 6d. net.

GEOGRAPHY.

Junior Regional Geography: the Americas. By J. B. Reynolds. Black, 1s. 4d.
Simple Geographical Readers. — (1) Little Travellers Abroad; (2) Lands Far and Near. Oliver & Boyd, each 10d.
The "A.L." Geographies.—(1) The World, 4d.; (2) Notebooks. Fifth-year Course and Sixth-year Course, each 4d. E. J. Arnold.
Outlines of Physical Geography. By H. Clive Barnard. Black, 1s. 6d.
Macmillan's Geographical Exercise Books.—I: The British Isles. 6d.
Weather Chart Exercises.—British Isles and West of Europe. By L. M. Odell. University of London Press, 6d.

MATHEMATICS.

Examples in Arithmetic. Extracted from the "Public School Arithmetic" by W. M. Baker and A. A. Bourne. Bell, 2s.
A Course of Geometry, Theoretical and Practical. By A. H. Bell. Rivingtons.
Functions of a Complete Variable. By James Pierpont. Ginn, 20s. net.
Modern Instruments and Methods of Calculation: a Handbook of the Napier Tercentenary Exhibition. Edited by E. M. Horsburgh. Bell, 6s. net.

SCIENCE.

Outlines of Applied Physics. By H. Stanley. Mills & Boon, 2s. 6d.
Methods of Quantitative Organic Analysis. By P. C. R. Kingscott and R. S. G. Knight. Longmans, 6s. 6d. net.

HYGIENE.

Physiology and Hygiene: for Girls' Schools and Colleges. By Elizabeth Sloan Chesser. Bell, 2s.
Mothercraft for Schoolgirls. By Florence Horspool. Preface by Lady Mond. Macmillan, 1s. net.
Sick Room Cookery Simplified. With Suggestions for Diet. By Mabel Baker. Bell, 1s. 6d. net.

CALENDARS.

Birkbeck College Calendar, 1914–1915. Furnival Press, 3d.
The London School of Economics Calendar, 1914–1915. Published by the School, 1s. net.
Society of Arts Programme for 1915. Bell, 4d.
University College, London, Calendar, 1914 - 1915. Taylor & Francis.
Matriculation Directory, September, 1914. Clive, 1s. net.

NOT CLASSIFIED.

A Call to Arms: a Speech by the Prime Minister at the Guildhall, September 4. Methuen, 1d.
Why Britain went to War: to the Boys and Girls of the British Empire. By Sir James Yoxall. Cassell, 1d.
The Meaning of War: for Labour, Freedom, Country. By Frederic Harrison. Macmillan, 1d.
The Country's Call: a Short Selection of Patriotic Verse. Chosen and edited by E. B. and Marie Sargant. Macmillan, 2d.
"1914." By C. W. Heffer. 1s. net. [A Poem.]
Pan-Germanism. By Roland G. Usher. Constable, 2s. net.
Prayers in Time of War. By the Archbishop of Canterbury and other Prelates. Jarrold, 3d. net.
Board of Education Papers. — (1) Imperial Conference Papers: Australia—Queensland. 4d. (2) Certificates for Teachers of Art. 1d.
Nature and Nurture in Mental Development. By F. W. Mott. Murray, 3s. 6d. net.
Stammering: its Causes and Cure. By John Hourigan. Liverpool: Young, 1s. 8d. net.
Hymns for Use during the War. Collected by Dr. Jane Walker. Women's Printing Society, 2d.
The Kaiser Unmasked. By Frank Mundell. Jarrold, 1s. net.
Germany and the Next War. By F. von Bernhardi. Arnold, 2s. net.
How Britain Strove for Peace. By Sir Edward Cook. Macmillan, 2d.
War Songs. By Emily Underdown. Riley, 6d.
Why are We at War? By J. Holland Rose. Heffer, 1d.
Oxford Pamphlets.—(1) India and the War. 1d. (2) French Policy since 1871. 2d. (3) Serbia and the Serbs. 2d. (4) Germany and the Fear of Russia. 2d. (5) The Germans. I and II. 2d. each. (6) The War and the British Dominions. 2d. Oxford University Press.

MATHEMATICS.

Readers desiring to contribute to the Mathematical columns are asked to observe the following directions very carefully:—

(1) *To write on one side only of the paper.*
(2) *To avoid putting more than one piece of work on a single sheet of paper.*
(3) *To sign each separate piece of work.*

17697. (S. Krishnaswami Aiyangar, B.A.)—At every point of a parabola tangents are drawn equal in length to the portion of the parabola intercepted between the vertex and the point in question. Show that the locus of the extremities of such tangents is

$$x = 2at^2 + at\left\{\log\left[t + \sqrt{(1+t^2)}\right]\right\}/\sqrt{(1+t^2)},$$
$$y = 3at + a\left\{\log\left[t + \sqrt{(1+t^2)}\right]\right\}/\sqrt{(1+t^2)}.$$

Solution by G. W. Border, B.A., C. W. Adams, M.A., *and others.*

Coordinates of any point P on the parabola are $(at^2, 2at)$.

$$\text{Arc AP} = \int_0^x \sqrt{\left\{1+\left(\frac{dy}{dx}\right)^2\right\}}\,dx = \int_0^t \sqrt{\left\{1+\left(\frac{dy/dt}{dx/dt}\right)^2\right\}}\,2at\,dt$$
$$= 2a\int_0^t \sqrt{(1+t^2)}\,dt = a\left\{t\sqrt{(1+t^2)} + \log\left[t+\sqrt{(1+t^2)}\right]\right\}.$$

The tangent at P is $x - ty + at^2 = 0$. Hence its angle of inclination to axis is $\tan^{-1} 1/t$.

Coordinates of point along it at a distance equal to arc AP are given by

$$x = at^2 + t/\sqrt{(1+t^2)}\,.\,a\left\{t\sqrt{(1+t^2)} + \log\left[t+\sqrt{(1+t^2)}\right]\right\}$$
$$= 2at^2 + at/\sqrt{(1+t^2)}\,.\log\left[t+\sqrt{(1+t^2)}\right],$$
$$y = 2at + 1/\sqrt{(1+t^2)}\,.\,a\left\{t\sqrt{(1+t^2)} + \log\left[t+\sqrt{(1+t^2)}\right]\right\}$$
$$= 3at + a/\sqrt{(1+t^2)}\log\left[t+\sqrt{(1+t^2)}\right].$$

17728. (J. G. Carmichael.)—Give a general solution, for positive integral values, of the indeterminate equation $x^3y - xy^3 = a$. *Note.*—If $a = 71831760$ $(= 2^4.3.5.7.11.13^2.23)$, three known pairs of values are 169 and 15, 169 and 161, 169 and 176. Are there any others? Find a when x and y have at least five pairs of values.

Part Solution by Lt.-Col. Allan Cunningham, R.E.

The equation proposed is solvable in integers (x, y) only for suitable values of a. Such values of a, along with triple solutions (x, y) may be found by the following process:—

Assume that the equation has two solutions (x, y), (x', y'), wherein $x = x'$, $y \neq y'$; an assumption to be justified by the result. Then

$$a = x^3y - xy^3 = x'^3y' - x'y'^3;$$

which gives, on division by $x = x'$,

$$x^2(y-y') = y^3 - y'^3, \quad \text{whence} \quad x^2 = (y^3 - y'^3)\div(y-y') \quad \ldots (1).$$

This shows that x^2, and therefore also x, are of form $x = a^2 + 3b^2$. Now every number x of that form has its square of same form, viz.:

$$x^2 = A^2 + 3B^2 = (a^2 \sim 3b^2)^2 + 3\,(2ab)^2;$$

and every such square (x^2) can be expressed in the form $(y^3 \sim y'^3)\div(y \sim y')$ in three ways, one of which is given by

$$y = (A \mp B), \quad y' = 2AB;$$

and then
$$x^2 = \frac{y^3 \sim y'^3}{y \sim y'} = \frac{(y+y')^3 + y'^3}{(y+y') + y} = \frac{(y+y')^3 + y'^3}{(y+y') + y'} \quad \ldots\ldots\ldots (2).$$

Hence every integer x of form $x = a^2 + 3b^2$ yields three solutions of above equation, viz.: (x, y), (x, y'), $(x, y+y')$.

Ex. 1.—Take $x = 7$ (the smallest value suitable). Then

$$x^2 = 49 = 1^2 + 3.4^2 = \frac{5^3 - 3^3}{5-3} = \frac{8^3 + 3^3}{8+5} = \frac{8^3 + 5^3}{8+5};$$
$$y = 5, \quad y' = 3, \quad y + y' = 8.$$
$$a = 7.5.2.12 = 7.3.4.10 = 7.8.1.15 = 840.$$

Ex. 2.—Take $x = 169$ (the Proposer's example). Then

$$x^2 = 169 = 73^2 + 3.88^2 = \frac{161^3 - 15^3}{161-15} = \frac{176^3 + 15^3}{176+15} = \frac{176^3 + 161^3}{176+161};$$
$$y = 161, \quad y' = 15, \quad y + y' = 176.$$
$$a = 169.161.8.330 = 169.15.154.184 = 169.176.7.345.$$

[In the results obtained by this method, $y + y'$ is always $> x$,

thus making N negative. This may be corrected by interchanging the values of x, $y+y'$ in the third pair. Thus, in the Proposer's example, the three pairs would be

$$(x, y) = (169, 161), (169, 15), (176, 169), (\text{not } 169, 176)].$$

Only three solutions can be obtained in this way.

When the chosen $x = x'$ is a prime, or a prime-power, the form $x^2 = A^2 + 3B^2$ is unique, and the three cuban primes of (2) are als unique; so that only three numbers y, y', $(y+y')$ are yielded.

When x is composite, then x^2 has two or more forms (A^2+3B^2), each of which yields one set of the numbers y, y', $(y+y')$. But each of these sets yields a different product a. So that only three solutions arise for each product a, even when $x = x'$ is composite.

17575. (F. Glanville Taylor, M.A., B.Sc.)—If H, I, O are the ortho-, in- and circum-centres of ABC, and H′, I′ the images of H and I respectively through O, so that O is the mid-point of HH′ and of II′; and if V is the isogonal conjugate of I′, prove that H′I′V is a straight line.

Solution by the Proposer.

Take $R = 1$; write x, y, z for $\cos A$, &c.; and denote (α, β, γ) by (α) generally.

Then we have the following coordinates:—

$$O(x), \quad H(2yz), \quad \text{whence} \quad H'[2(x-yz)] = (\alpha) \text{ say};$$
$$I(-1+x+y+z), \quad \text{whence} \quad I'(1+x-y-z) = (\lambda) \text{ say}.$$

Hence $\quad V(\mu\nu)$ or $[(1-x+y-z)(1-x-y+z)]$.

Now $(1+x-y-z)(1+x+y+z)-(1-x+y-z)(1-x-y+z)$
$$= (1+x)^2-(y+z)^2-(1-x)^2+(y-z)^2 = 4(x-yz),$$
or
$$\lambda(1+x+y+z)-\mu\nu = 2\alpha.$$

Since the factor $1+x+y+z$ is symmetrical, it follows that H′ lies on I′V.

17739. (Professor J. C. Swaminarayan, M.A.) — A complete quadrilateral is formed by the four straight lines $y = 0$ and

$$a_r x + b_r y + c_r = 0 \quad (r = 1, 2, 3).$$

Prove that the circles on the three diagonals as diameters are coaxal, the equation of the common radical axis being

$$\begin{vmatrix} a_1B_1, & b_1C_1, & 1 \\ a_2B_2, & b_2C_2, & 1 \\ a_3B_3, & b_3C_3, & 1 \end{vmatrix} x - 3\Delta a_1a_2a_3 y + \begin{vmatrix} a_1C_1, & c_1A_1, & 1 \\ a_2C_2, & c_2A_2, & 1 \\ a_3C_3, & c_3A_3, & 1 \end{vmatrix} = 0,$$

where the capital letters denote the minors of corresponding small letters in the determinant

$$\Delta = \begin{vmatrix} a_1, & b_1, & c_1 \\ a_2, & b_2, & c_2 \\ a_3, & b_3, & c_3 \end{vmatrix}.$$

Solution by W. N. Bailey.

The lines (1) and (2) meet at $(A_3/C_3, B_3/C_3)$, and (3) meets $y = 0$ at $(-c_3/a_3, 0)$. Hence the equation of one circle is

$$(x+c_3/a_3)(x-A_3/C_3)+y(y-B_3/C_3) = 0,$$
or
$$a_3C_3(x^2+y^2)+x(C_3c_3-A_3a_3)-a_3B_3y-A_3c_3 = 0.$$

Similarly another circle is

$$a_2C_2(x^2+y^2)+x(C_2c_2-A_2a_2)-a_2B_2y-A_2c_2 = 0,$$

and the equation of the radical axis of these circles is

$$x\{a_2C_2(C_3c_3-A_3a_3)-a_3C_3(C_2c_2-A_2a_2)\}$$
$$+y(a_2a_3B_2C_3-a_2a_3B_3C_2)+A_2c_2a_3C_3-A_3c_3a_2C_2 = 0;$$

and this is easily seen to be the same as the given equation by using identities such as $a_1A_1+a_2A_2+a_3A_3 = \Delta$, $a_1B_1+a_2B_2+a_3B_3 = 0$;

e.g.: $a_2a_3(B_2C_3-B_3C_2) = a_2a_3\{B_2(a_1b_2-a_2b_1)-B_3(a_3b_1-a_1b_3)\}$
$$= a_2a_3\{a_1(\Delta-b_1B_1)+b_1.a_1B_1\} = a_1a_2a_3\Delta.$$

The symmetry of the result shows that the three circles are coaxal.

17724. (Professor J. C. Swaminarayan, M.A.)—If

$$\frac{\sin(x-a)}{\sin(b+c-2a)} = \frac{\sin(x-b)}{\sin(c+a-2b)},$$

prove that each of the given ratios is equal to

$$\frac{\sin(x-c)}{\sin(a+b-2c)}$$

and
$$\tan x = \frac{\sin(b+c-a)+\sin(c+a-b)+\sin(a+b-c)}{\cos(b+c-a)+\cos(c+a-b)+\cos(a+b-c)}.$$

Solutions (I) *by* W. F. Beard, M.A.; (II) *by* I. Fitz Roy Jones, W. F. Mindham, *and many others*.

(I)
$$\frac{\sin(x-a)}{\sin(b+c-2a)} = \frac{\sin(x-b)}{\sin(c+a-2b)} \quad \ldots\ldots\ldots\ldots\ldots\ldots (1).$$

Therefore

$$\tan x\{\cos a \sin(c+a-2b)-\cos b \sin(b+c-2a\}$$
$$= \sin a \sin(c+a-2b)-\sin b \sin(b+c-2a);$$
$$\tan x\{\sin(c+2a-2b)+\sin(c-2b)-\sin(c+2b-2a)-\sin(c-2a)\}$$
$$= \cos(c-2b)-\cos(c+2a-2b)-\cos(c-2a)+\cos(c+2b-2a).$$

Therefore

$$\tan x\{\sin(2a-2b)\cos c+\sin(a-b)\cos(c-a-b)\}$$
$$= \sin(b-a)\sin(c-a-b)+\sin(2a-2b)\sin c.$$

Assuming $\sin(a-b) \neq 0$,

$$\tan x\{2\cos(a-b)\cos c+\cos(a+b-c)\}$$
$$= \sin(a+b-c)+2\cos(a-b)\sin c.$$

Therefore

$$\tan x\{\cos(b+c-a)+\cos(c+a-b)+\cos(a+b-c)\}$$
$$= \sin(b+c-a)+\sin(c+a-b)+\sin(a+b-c).$$

The symmetry of this result shows that, supposing $\sin(b-c)$ or $\sin(c-a) \neq 0$, each fraction in (1) $= \dfrac{\sin(x-c)}{\sin(a+b-2c)}$.

(II) We have
$$\frac{\sin(x-a)}{\sin(b+c-2a)} = \frac{\sin(x-b)}{\sin(c+a-2b)},$$
or
$$2\sin(x-a)\sin(c+a-2b) = 2\sin(x-b)\sin(b+c-2a),$$
or
$$\cos(x-c-2a+2b)-\cos(x+c-2b)$$
$$= \cos(x-2b-c+2a)-\cos(x+c-2a),$$
or
$$2\sin(x-c)\sin(2a-2b) = 2\sin(x+c-a-b)\sin(b-a),$$
or
$$4\sin(x-c)\sin(a-b)\cos(a-b) = -2\sin(x+c-a-b)\sin(a-b),$$
or
$$2\sin(x-c)\cos(a-b) = -\sin(x+c-a-b),$$
or
$$\sin(x+a-b-c)-\sin(a-b-x+c) = -\sin(x+c-a-b),$$
or
$$\sin(x+a-b-c)+\sin(x+b-a-c)+\sin(x+c-a-b) = 0 \ldots (\alpha),$$

which is symmetrical; hence each of the original expressions

$$= \frac{\sin(x-c)}{\sin(a+b-2c)}.$$

Expanding (α), we have at once

$$\tan x = -\frac{\sin(a-b-c)+\sin(b-c-a)+\sin(c+a-b)}{\cos(a-b-c)+\cos(b-c-a)+\cos(c-a-b)}$$
$$= \frac{\sin(b+c-a)+\sin(c+a-b)+\sin(a+b-c)}{\cos(b+c-a)+\cos(c+a-b)+\cos(a+b-c)}.$$

17672. (R. F. Davis, M.A.)—Prove that in any triangle

$$\begin{vmatrix} a & b & c \\ a^{-1} & b^{-1} & c^{-1} \\ a^{-2}\cos A & b^{-2}\cos B & c^{-2}\cos C \end{vmatrix} = 0.$$

Solutions (I) *by* James Blaikie, M.A., *and others*; (II) *by* Professor K. J. Sanjána, M.A., *and* T. P. Trivedi, M.A., LL.B.; (III) *by* N. Sankara Aiyar, M.A.; (IV) *by* F. W. Reeves, M.A.; (V) *by* J. Macmillan, M.A., *and others*.

(I) If we substitute for the cosines their values in terms of their sides, the determinant becomes

$$\begin{vmatrix} a & b & c \\ \dfrac{1}{a} & \dfrac{1}{b} & \dfrac{1}{c} \\ \dfrac{b^2+c^2-a^2}{2a^2bc} & \dfrac{c^2+a^2-b^2}{2ab^2c} & \dfrac{a^2+b^2-c^2}{2abc^2} \end{vmatrix}$$
$$= \frac{1}{2a^2b^2c^2}\begin{vmatrix} a^2 & b^2 & c^2 \\ 1 & 1 & 1 \\ b^2+c^2-a^2 & c^2+a^2-b^2 & a^2+b^2-c^2 \end{vmatrix}$$
$$= \frac{1}{2a^2b^2c^2}\begin{vmatrix} a^2 & b^2 & c^2 \\ 1 & 1 & 1 \\ a^2+b^2+c^2 & a^2+b^2+c^2 & a^2+b^2+c^2 \end{vmatrix}$$
$$\ldots = \frac{a^2+b^2+c^2}{2a^2b^2c^2}\begin{vmatrix} a^2 & b^2 & c^2 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{vmatrix} = 0.$$

(II) The result is the expression of the fact that, in trilinears, the lines $\alpha a^{-1}+\beta b^{-1}+\gamma c^{-1} = 0$ and $\alpha a^{-2}\cos A+\beta b^{-2}\cos B+\gamma c^{-2}\cos C$

are parallel, which is the case since

$$\alpha a^{-2}\cos A+\beta b^{-2}\cos B+\gamma c^{-2}\cos C$$
$$=\frac{a^2+b^2+c^2}{2abc}\left\{\alpha a^{-1}+\beta b^{-1}+\gamma c^{-1}\right\}-\frac{1}{abc}\left\{a\alpha+b\beta+c\gamma\right\},$$

identically. [Rest in *Reprint*.]

17726. (T. Muir, LL.D.)—Resolve into factors

$$\begin{vmatrix} a_1 & a_2 & a_3 & x & . & . \\ b_1 & b_2 & b_3 & . & y & . \\ c_1 & c_2 & c_3 & . & . & z \\ x & . & . & a_1 & a_2 & a_3 \\ . & y & . & b_1 & b_2 & b_3 \\ . & . & z & c_1 & c_2 & c_3 \end{vmatrix}.$$

Solution by the Proposer, C. M. Ross, M.A., *and* W. N. Bailey.

Performing the operations

$$\text{col}_4-\text{col}_1,\quad \text{col}_5-\text{col}_2,\quad \text{col}_6-\text{col}_3,$$

and thereafter the operations

$$\text{row}_1+\text{row}_4,\quad \text{row}_2+\text{row}_5,\quad \text{row}_3+\text{row}_6,$$

we obtain as an equivalent

$$\begin{vmatrix} a_1+x & a_2 & a_3 & . & . & . \\ b_1 & b_2+y & b_3 & . & . & . \\ c_1 & c_3 & c_3+z & . & . & . \\ x & . & . & a_1-x & a_2 & a_3 \\ . & y & . & b_1 & b_2-y & b_3 \\ . & . & z & c_1 & c_2 & c_3-z \end{vmatrix}$$

which equals

$$\begin{vmatrix} a_1+x & a_2 & a_3 \\ b_1 & b_2+y & b_3 \\ c_1 & c_2 & c_3+z \end{vmatrix}\cdot\begin{vmatrix} a_1-x & a_2 & a_3 \\ b_1 & b_2-y & b_3 \\ c_1 & c_2 & c_3-z \end{vmatrix}.$$

17690. (W. E. H. Berwick.)—Prove that $S_n(x)$, the rational integral function of x of degree $n+1$, which when x is a positive integer equals $1^n+2^n+3^n+\ldots+x^n$, is an even or odd function of $2x+1$ according as n is odd or even. Expand this function in the form

$$\frac{1}{2^n}\left[\frac{(2x+1)^{n+1}}{2(n+1)}+\sum_{t=1}^{t=r}(-)^t I_t\frac{n!\,(2x+1)^{n+1-2t}}{(2t+2)!\,(n+1-2t)!}\right],$$

where $r=\frac{1}{2}n$ or $\frac{1}{2}(n+1)$ according as n is even or odd, and

$$I_1=2,\quad I_2=7,\quad I_3=41\tfrac{1}{3},\quad I_4=381,\quad I_5=5110.$$

Obtain also a recurrence relation for the constants I_t and evaluate them as far as I_{10}.

Solution by S. T. Shovelton.

Let $\phi(\Delta)$ denote the operator $1-\frac{1}{2}\Delta+\frac{1}{3}\Delta^2-\frac{1}{4}\Delta^3+\ldots$,

where $\Delta u_x=u_{x+1}-u_x$,

and let $\phi_n(x)=\phi(\Delta)\,x^n$.

Then $\phi_n(x+1)-\phi_n(x)=\Delta\phi(\Delta)\,x^n=d/dx\,x^n=nx^{n-1}$,

for, as is well known, $(\Delta-\frac{1}{2}\Delta^2+\frac{1}{3}\Delta^3-\ldots)\,\psi(x)=d/dx\,\psi(x)$, when the former is convergent.

Thus, when x is an integer, we have

$$\phi_{n+1}(x+1)-\phi_{n+1}(0)=(n+1)\left\{1^n+2^n+\ldots+x^n\right\};$$

therefore $S_n(x)=1/(n+1)\left\{\phi_{n+1}(x+1)-\phi_{n+1}(0)\right\}$.

In a paper recently read before the London Mathematical Society, I showed that

$$hu'_{x+\kappa h}=\Delta u_x+h\phi_1(\kappa)\,\Delta u'_x+\ldots+h^n/n!\,\phi_n(\kappa)\,\Delta u_x^{(n)}+Ru,$$

where

$$Ru=\frac{h^{n+1}}{n!}\left\{\int_0^{(1-\kappa)}\phi_n(z+\kappa)\,u_{x+h-zh}^{(n+1)}\,dz+\int_{1-\kappa}^{1}\phi_n(z+\kappa-1)\,u_{x+h-zh}^{(n+1)}\,dz\right\},$$

where the differences in u_x and its differential coefficients refer t intervals of h, *i.e.*, $\Delta u_x^{(r)}=u_{x+h}^{(r)}-u_x^{(r)}$.

Hence if we take $u_x=e^x$, we have

$$\frac{he^{\kappa h}}{e^h-1}=1+h\phi_1(\kappa)+\frac{h^2}{2!}\phi_2(\kappa)+\ldots \qquad \ldots\ldots\ldots (A)$$

Thus $\phi_1(0)=-\frac{1}{2}$, $\phi_3(0)=\phi_5(0)=\ldots=\phi_{2n+1}(0)=0$,

$$\phi_{2n}(0)=(-1)^{n-1}B_n,\quad\text{and}\quad \phi_n(0)=\phi_n(1$$

except for $n=1$, when $\phi_1(1)=\frac{1}{2}$.

Also from $\dfrac{h(e^{\frac{1}{2}h}+1)}{e^h-1}=\dfrac{h}{e^{\frac{1}{2}h}-1}$

we find by comparison of coefficients that

$$\phi_n(\tfrac{1}{2})+\phi_n(0)=1/2^{n-1}\phi_n(0).$$

Thus $\phi_1(\frac{1}{2})=\phi_3(\frac{1}{2})=\ldots=\phi_{2n+1}(\frac{1}{2})=0$,

and $\phi_{2n}(\frac{1}{2})=(-1)^n(1-1/2^{2n-1})\,B_n$.

Now
$$\phi_{n+1}(x+1)=\phi(\Delta)\left\{(x+\tfrac{1}{2})+\tfrac{1}{2}\right\}^{n+1}$$
$$=(x+\tfrac{1}{2})^{n+1}+{}^{n+1}C_1(x+\tfrac{1}{2})^n\phi_1(\tfrac{1}{2})$$
$$+{}^{n+1}C_2(x+\tfrac{1}{2})^{n-1}\phi_2(\tfrac{1}{2})+\ldots \qquad \ldots\ldots (B),$$

and thus, since the alternate terms vanish,

$$S_n(x)=1/(n+1)\left\{(x+\tfrac{1}{2})^{n+1}+{}^{n+1}C_2\phi_2(\tfrac{1}{2})(x+\tfrac{1}{2})^{n-1}+\ldots-\phi_{n+1}(0)\right\}.$$

If n is odd and $=2\mu-1$, the last term is

$$\phi_{2\mu}(\tfrac{1}{2})-\phi_{2\mu}(0)=(-1)^\mu 2\,(1-1/2^{2\mu})\,B_\mu,$$

and if n is even and $=2\mu$, the last term is

$$(2\mu+1)\,\phi_{2\mu}(\tfrac{1}{2})(x+\tfrac{1}{2}).$$

This result can be identified with Mr. Berwick's form by writing

$$S_n(x)=\frac{1}{2^n}\left\{\frac{(2x+1)^{n+1}}{2(n+1)}+n!\sum_{t=1}^{t=r}\frac{2^{2t-1}\,\phi_{2t}(\frac{1}{2})(2x+1)^{n+1-2t}}{(2t)!\,(n+1-2t)!}\right\}-\frac{\phi_{n+1}(0)}{n+1},$$

where $r=\frac{1}{2}n$ or $\frac{1}{2}(n+1)$. Therefore if

$$\frac{I_t}{(2t+1)(2t+2)}=(-1)^t\phi_{2t}(\tfrac{1}{2})\,.\,2^{2t-1},$$

we have

$$S_n(x)=\frac{1}{2^n}\left\{\frac{(2x+1)^{n+1}}{2(n+1)}+n!\sum_{t=1}^{t=r}(-1)^t I_t\frac{(2x+1)^{n+1-2t}}{(2t+2)!\,(n+1-2t)!}\right\}+R,$$

where $R=0$ if n is even, and

$$=-\frac{\phi_{n+1}(0)}{n+1}=+\frac{\phi_{n+1}(\frac{1}{2})}{(n+1)(1-1/2^n)}$$
$$=\frac{(-1)^{\frac{1}{2}(n+1)}\,I_{\frac{1}{2}n(n+1)}}{2^n(n+1)(n+2)(n+3)(1-1/2^n)}\ \text{if } n \text{ is odd.}$$

[It should be noticed that the question should be amended by the inclusion of R for odd values of n.]

Several recurrence formulae for the constants may be obtained from (A) and (B).

From the latter

$$\phi_{n+1}(1)=1/2^{n+1}+{}^{n+1}C_2\,1/2^{n-1}\phi_2(\tfrac{1}{2})+{}^{n+1}C_4\,.\,1/2^{n-3}\phi_4(\tfrac{1}{2})+\ldots,$$

and therefore

$$0=1+{}^{2n+1}C_2\,2^2\phi_2(\tfrac{1}{2})+{}^{2n+1}C_4\,2^4\phi_4(\tfrac{1}{2})+\ldots+{}^{2n+1}C_{2n}\,2^{2n}\phi\ (\tfrac{1}{2}),$$

and

$$-\frac{2^{4n-1}\phi_{2n}(\frac{1}{2})}{(2^{2n-1}-1)}=1+{}^{2n}C_2\,2^2\phi_2(\tfrac{1}{2})+{}^{2n}C_4\,2^4\phi_4(\tfrac{1}{2})+\ldots+{}^{2n}C_{2n}\,2^{2n}\phi_{2n}(\tfrac{1}{2}),$$

of which the first is clearly the best for numerical calculation.

In Mr. Berwick's notation these become

$$0=\frac{1}{2!\,(2n+1)!}-\frac{I_1}{4!\,(2n-1)!}+\frac{I_2}{6!\,(2n-3)!}-\ldots+(-1)^n\frac{I_n}{(2n+2)!\,1!}$$

and $(-1)^{n+1}\dfrac{2^{2n-1}}{2^{2n-1}-1}\ \dfrac{I_n}{(2n+2)!}$

$$=\frac{1}{2!\,(2n)!}-\frac{I_1}{4!\,(2n-2)!}+\ldots+(-1)^n\frac{I_n}{(2n+2)!}.$$

Also from (A) we have at once

$$\frac{x}{\sin x}=1-\frac{2^2x^2}{2!}\phi_2(\tfrac{1}{2})+\frac{2^4x^4}{4!}\phi_4(\tfrac{1}{2})-\ldots,$$

and then, from the identity $x/\sin x\,.\sin 2x=2x\cos x$,

we obtain, by comparison of coefficients,

$$\frac{2n+1}{2^{2n}}=1+{}^{2n+1}C_2\phi_2(\tfrac{1}{2})+{}^{2n+1}C_4\phi_4(\tfrac{1}{2})+\ldots+{}^{2n+1}C_{2n}\phi_{2n}(\tfrac{1}{2})$$

or
$$\frac{1}{2^{2n+1}(2n)!}=\frac{1}{2!\,(2n+1)!}-\frac{I_1}{4!\,(2n-1)!}\cdot\frac{1}{2^2}+\ldots$$
$$\ldots+(-1)^n\frac{I_n}{(2n+2)!\,1!}\cdot\frac{1}{2^{2n}}.$$

Similarly, from $x/\sin x\,(1-\cos 2x)=2x\sin x$,

we find $\dfrac{2^n}{2^{2n-1}}=1+{}^{2n}C_2\phi_2(\frac{1}{2})+{}^{2n}C_4\phi_4(\frac{1}{2})+\ldots+{}^{2n}C_{2n-2}\phi_{2n-2}(\frac{1}{2})$.

Another relation arises from the equation

$$\frac{x}{\sin x}\cos\tfrac{1}{2}x=\frac{x}{2\sin\frac{1}{2}x},$$

while those derived above from (B) might also be obtained from

$$\frac{x}{\sin x}\sin x=1\quad\text{and}\quad\frac{x}{\sin x}\cos x=x\cot x.$$

QUESTIONS FOR SOLUTION.

17856. (E. N. Lace.)—A pentagon is circumscribed to a circle. Express its area in terms of the sides and the perimeter.

17857. (A. P. Smith.)—Sum the series

$$\sum_1^r (2r-1)(2r+1)\sin[(2r-1)\pi/r].$$

17858. ("Aviator.")—A shot is fired from a gun with such velocity and elevation that it would hit a stationary aeroplane of given height. If the aeroplane be hit, though not stationary, but moving away horizontally from the gun with a given velocity, find an equation connecting the velocities of gun and aeroplane.

17859. (P. Smart).—Find the lengths of the three shortest lines that bisect the area of a triangle, and explain what restriction, if any, is necessary to the ratios of the sides.

17860. (W. N. Bailey. *Suggested by Question* 17783).—If

$$\Delta = \begin{vmatrix} l_1 & l_2 & l_3 \\ m_1 & m_2 & m_3 \\ n_1 & n_2 & n_3 \end{vmatrix}, \quad \Delta' = \begin{vmatrix} l_2l_3 & l_3l_1 & l_1l_2 \\ m_2m_3 & m_3m_1 & m_1m_2 \\ n_2n_3 & n_3n_1 & n_1n_2 \end{vmatrix},$$

and $L_1, M_1, N_1 \ldots$ are the co-factors of $l_1, m_1, n_1 \ldots$ in Δ.

Then
$$\begin{vmatrix} l_1L_2L_3 & l_2L_3L_1 & l_3L_1L_2 \\ m_1M_2M_3 & m_2M_3M_1 & m_3M_1M_2 \\ n_1N_2N_3 & n_2N_3N_1 & n_3N_1N_2 \end{vmatrix} = -\Delta\Delta'^2,$$

and
$$\begin{vmatrix} L_2L_3 & L_3L_1 & L_1L_2 \\ M_2M_3 & M_3M_1 & M_1M_2 \\ N_2N_3 & N_3N_1 & N_1N_2 \end{vmatrix} = -\Delta^2\Delta'.$$

17861. (E. R. Hamilton.)—Two equal parabolas ABC, ECF have their axes parallel but oppositely directed, and touch at C. Any circle ABD is drawn, cutting the first parabola in A, B, the other two intersections being imaginary. The chord AB of the first parabola, and the tangent at C, are equally inclined to the axis of either parabola, but are not parallel. The radius OD of the circle perpendicular to the common tangent of the parabolas meets the common diameter of the parabolas through C in G. The chord EGF of the second parabola is now drawn perpendicular to OD. Prove that, if a circle be drawn through E, F with centre at H, where GH = radius OD of ABD, and H and D are on opposite sides of EF, this circle will touch ABD at D.

17862. (A. W. H. Thompson.)—Let a, b be two points and Γ a curve in a plane. Let p_1, p_2, t_1, t_2 be the perpendiculars from a, b on the tangent and normal at a point of Γ, and let ψ be the angle the tangent makes with the join ab. Show that

$$\int (p_1p_2 - t_1t_2)d\psi = -\tfrac{1}{2}(p_1t_2 + p_2t_1) + \tfrac{1}{2}t(p_1+p_2) - \tfrac{1}{2}p(t_1+t_2)$$
$$+ \text{sector of curve in respect to } c,$$

where c is an arbitrary point, and p, t are the perpendiculars from c on the tangent and normal of the curve. Show that both $\int p_1p_2\delta\psi$ and $\int t_1t_2d\psi$ are expressible in terms of the intrinsic function $\rho - 2(d^2\rho/d\psi^2) + 3(d^4\rho/d\psi^4) - \ldots,$

ρ being the curvature and the infinite series being supposed convergent.

17863. (B. Howarth.)—Let D be an integer (not necessarily a prime), such that the decimal equivalent of 1/D is a pure circulator with a period of p figures. Then, if p be a factor of n,

(i) D is a factor of $m \to 000\ldots001\,(n)$ if D be a factor of m;

(ii) D is not a factor of $m \to 1, 0000\ldots001\,(n)$ if D be not a factor of m.

(Notation.—I use $m \to_{000\ldots001}$ to denote $m \to_{000\ldots001}(n)$, $000\ldots001\,(n)$, $000\ldots001\,(n)$, ..., to m groups, n denoting the number of figures in each group. Thus if $(n) = 1$, then $m \to_{000\ldots001}(n) = 1$; if $(n) = 2$, $m \to_{01}$; if $(n) = 3$, $m \to_{001}$; and so on. Hence $m \to_1 = 111\ldots$ to m terms; $4 \to_{99} = 99999999 = 8 \to_9$; $3 \to_{0001} = 000100010001$.)

17864. (E. R. Hamilton.)—Find the envelope of a common tangent to circles of two coaxal systems which cut at a constant angle.

17865. (Anon.)—ABCD is a quadrilateral. Find the angle made with AD by the join of the intersections of the bisectors of the angles A, C and B, D. (Trip. 1879.)

17866. (N. W. M'Lachlan, B.Sc., A.M.I.E.E.)—A triangle ABC, C = 90°, CB horizontal, represents a wall crane with a load W at B. Find B so that the weight of metal used for the tie rod AB is a minimum (i) when W is at B, (ii) when W hangs anywhere between B and C.

17867. (Prof. Neuberg.)—Soient OM, OM′ deux demi-diamètres conjugués quelconques de l'ellipse $a^2x^2 + b^2y^2 = a^2b^2$. Menons MP perpendiculaire sur l'axe Ox; trouver l'équation de l'enveloppe de la parallèle à OM′ menée par P.

17868. (Prof. E. J. Nanson, M.A.)—Two rods PQ, P′Q′ move with their extremities P, P′ on a fixed straight line OA, and their extremities Q, Q′ on a fixed straight line OB, so that P, Q, P′, Q′ are concyclic. Find the locus of the centre of the circle PQP′Q′.

17869. (*Communicated by* C. M. Ross, M.A.)—Express as symmetrically as possible the value of

$$\iiint a, b, c, d, f, g, h, l, m, n\between xyz)^2 dx\,dy\,dz,$$

taken through a tetrahedron. (T.C.D. Moderatorship, 1911.)

17870. (S. Krishnaswami Aiyangar, B.A.)—A chord cuts off a segment of constant area from a given parabola. Find the envelope of such chords, the locus of their poles, the locus of the intersections of the normals at their extremities, the locus of the centres of gravity of such segments, and the position of the foci of the above envelope and pole-locus.

17871. (Prof. R. Srinivasan, M.A.)—If D, E, F be points in the sides of a triangle ABC, such that AD, BE, CF are concurrent, show that

$$2BD.CE.AF + BD.AB.AC + CE.BC.AB + AF.CA.BC$$
$$= AB.BC.CA + AB.BD.CE + BC.CE.AF + CA.AF.BD.$$

17872. (V. V. S. Narayan.)—Construct a triangle, given BC in length, the angle B, and the distance of the Lemoine (Symmedian) point from the middle point of BA.

17873. (Prof. J. C. Swaminarayan, M.A.)—LMN is the Wallace line of the triangle ABC for a point P on the circumcircle. If OX represents in magnitude and direction the resultant of the forces OL, OM, ON, find the locus of X.

17874. (The late Prof. Crofton.)—A floor is ruled with parallel lines at a distance d apart. An equilateral triangle of side d is thrown on the floor. Find the chance of its falling on a line.

17875. (W. N. Bailey.)—Find the loci of the foci of the three parabolas which touch two sides of a triangle at the extremities of the third side. Also show that the joins of a vertex of the triangle to the focus of the opposite parabola are concurrent.

17876. (R. F. Davis, M.A.)—Through E, a given point within a given circle, any chord PEQ is drawn. If EM, EN are the perpendiculars from E on the tangents at P, Q, prove that 1/EM + 1/EN = constant.

17877. (Prof. K. J. Sanjána, M.A.)—A chord of a conic subtends a fixed angle at a fixed point of the curve. Find the loci of its pole and of the intersections of the normals at its extremities.

17878. (W. F. Beard, M.A.)—The centroid of a triangle circumscribed to a parabola is on the directrix. Show that the joins of each vertex to the point of contact of the opposite are concurrent.

17879. (E. G. Hogg, M.A.)—If two parabolas inscribed in a triangle have their foci at the extremities of a chord of the circumcircle which passes through the Symmedian point of the triangle, then the points of contact of the curves with the sides of the triangle lie on a conic whose asymptotes are parallel to the axes of the parabolas.

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CONTENTS.

	Page
Leader: Circular 849	525
Notes — Students at Universities—German Greed—The Future of Education—Private Initiative and the War—Douglas Lee Scott—Professional Classes War Relief Council—War Books.	526
Summary of the Month	528
Exercises for Teachers and Others. By Eustace Miles, M.A.	529
The Teaching of English Prose. By S. P. B. Mais, M.A.	529
The Foundations of Christian Education. By Prof. F. W. Förster (*continued*)	532
The Lighter Side of Pedagogy	534
Correspondence — Elementary Logic; Prize Competition; National Home-Reading Union.	534
Prize Competition	535
Current Events	536
Poetry: The Roll of Honour	536
Educational Science in Australia—and Elsewhere. By Prof. J. J. Findlay	539
Reviews — Froebel as a Pioneer in Modern Psychology (Murray); The Teaching of Greek at the Perse School, Cambridge (Board of Education); An Introduction to Experimental Psychology in relation to Education (Valentine); Handbook of Practice for Teachers (McMurry); Sense Plays and Number Plays (Ashford); The Renaissance of Motherhood (Key).	542
Overseas	545
General Notices	546
Christmas Books	548
Publications Received	549
Mathematics	552

The Educational Times.

CIRCULAR 849.

In July of this year the Board of Education issued a Circular to Local Education Authorities and Secondary Schools, containing proposals in reference to examinations in such schools, and inviting criticism and suggestion. It will be remembered that in December, 1911, the Board published the Report of the Consultative Committee on Examinations in Secondary Schools. The immediate recommendation in the Report was that representatives of examining bodies should be summoned by the Board to a conference. An invitation to confer with the Board was addressed to the English Universities in 1912. The invitation was cordially accepted and during the year 1913 the Board have conferred on the subject with all the English Universities or the Examining Bodies representing them. These conferences resulted in an amount of agreement sufficient to satisfy the Board that the time had come to invite discussion among persons responsible for the management of secondary schools.

The proposals put forward by the Board for discussion follow the main recommendations of the 1911 Report, that school examinations should include the results of inspections and the opinions of the teaching staff, that the various examinations should be reduced to a common standard by a controlling Body appointed for this purpose; and that the examinations should be available for entrance to the Universities and the Professions, if those authorities so desired.

The Circular proposes that two examinations should be held, one suitable for pupils of the age of sixteen years to sixteen years eight months. This would include the general subjects of a secondary education. The other would be held two years later, and would admit of a suitable amount of specialization. These two examinations would take the place of the existing University examinations for secondary schools: they might be held by any English University, but each University agreeing to the scheme would undertake to accept as final the decision of the Controlling Body with regard to standard. On the results of the examination certificates would be issued. It is to be hoped that these certificates would be accepted by Universities and by the Councils of Professional Bodies, but the Board are careful to point out that it is no part of their plan to lay down conditions of entrance to the Universities or the Professions. In awarding the certificates the estimates of head masters and head mistresses would be taken into account, and there would be close co-operation between the examining bodies and H.M. Inspectors. The Controlling Body would be informed by an Advisory Committee, containing representatives of the Examining Universities, the Education Authorities, and the Teachers' Registration Council.

There are very definite advantages in these proposals. The variety and multiplicity of school examinations would give way to two examinations of a recognized scope and a clearly understood standard. The attempt to include in the final appraising the experience of the Inspector and of the teaching staff is valuable.

On the other hand there are points raised in the Circular that require discussion before they are accepted. One of these is the differentiation between schools controlled by the Board and other secondary schools. The proposed examinations (*a*) will be compulsory on grant-earning schools, (*b*) will be open on the same terms and conditions to schools placed on the Board's list of Efficient Secondary Schools, and (*c*) "will be accessible to all candidates under nineteen years of age, whatever their previous education may have been." The certificate will accentuate these distinctions. A successful candidate who has been in an efficient school for three years up to the age of sixteen, will receive a certificate naming the subjects in which he has passed, the school in which he was educated, the general character of the course of study, and stating that the school, after inspection by the Board, was found to be efficient. A successful candidate who has been in an efficient school, but has not remained for three years, or who has left before attaining the age of sixteen, will receive a certificate that he has satisfied the examiners and naming the subjects in which he has passed with

credit. A successful candidate who is not a pupil of a school on the Board's List will also receive a certificate stating that he has satisfied the examiners and naming the subjects in which he has passed with credit. It appears, therefore, that the Board propose to issue to candidates in schools controlled by the Board a certificate of a more dignified, and perhaps a more valuable, character than that granted to pupils from other schools.

Another point that deserves consideration is the proposed interval of two years between the examinations. It is doubtful whether pupils of this age can work satisfactorily for an examination two years ahead.

If the proposed examinations, as may well be hoped, become the test for entrance to the Universities and the Professions, a possible hardship may ensue. It is not to be supposed that all the pupils in a form will be successful. Under the proposed scheme it looks as if those who failed might lose their one chance of entering a learned profession. Existing circumstances give many chances.

It may be noted that the Circular admits examinations established by Universities alone. All examining bodies, other than Universities, are ruled out of all official recognition.

Consideration should be given to the very considerably increased control that the Board propose to exercise over secondary schools. Grant-earning schools "*will be required* to submit for the approval of the Board proposals for the annual examination of the school by one of the University examining bodies recognized by the Board for the purpose." No such school "*will be allowed* to take the preliminary examination" of the Oxford or Cambridge "Locals." And "the Board will reserve the right to *prohibit* any such school from taking the Junior Examination of those bodies or the Junior Certificate of any other University examining body." "No school recognized for grants will be *allowed* to modify its organization or curriculum, or that of any particular form, for the purpose of preparing any pupils or any form for any examination which is not approved by the Board." Finally, it is proposed that the Board shall undertake the functions and responsibilities of a co-ordinating authority after report from, and with the assistance of, an Advisory Committee In the quotations above we have italicized the compulsory words.

The Board propose to decide what examinations may be taken by secondary schools under their jurisdiction. Before this is done teachers in secondary schools should make up their minds whether or not this proposed control is going beyond the suitable limits of government by a State department. Some sort of organization is bound to come. If teachers themselves do not organize, control from the outside will be thrust upon them. It is owing to the supineness of the teaching profession, compared with the activity of the other professions, that matters have reached such a condition that either examinations must remain in a chaotic state or pressure must be exercised by State officials. The Board see clearly the existing disadvantages and meritoriously wish to put an end to them. In the leading article last month it was argued that teachers ought to form a self-governing profession. The machinery is already provided through the Registration Council. If all secondary teachers would register, it would then be possible for the profession of secondary teaching to issue regulations for its own government. It is not yet too late. Self-government shows more vitality and reacts more beneficially on individual work than the passive acceptance of regulations from the outside.

NOTES.

Students at Universities.

The position of Universities in the immediate future is the subject of some plain speaking in the *Oxford Magazine*. Already the number of undergraduates in residence at Oxford has undergone a very marked diminution. And those who remain are combining military training with learned study. Khaki has taken the place of the gown for official wear, and students go and come between the lecture-room and the drill-ground. More and more will young men who are physically fit join the army. The schools will cease to send fresh supplies, for the boys will go straight to the enlisting sergeant. "It is probable," says the *Oxford Magazine*, "that it will no longer be a matter of pride, but rather of shame, for a young man to be a member of the University of Oxford." In one way only can disaster be avoided. "The colleges must entirely change their Entrance Examinations. . . . Men should be allowed to come into residence as members of a college without undertaking to read for any of the existing examinations, and without contemplating any special period of residence. . . . However great the breach from tradition, we feel that this is the course dictated to the colleges alike by a desire for self-preservation and by the nation's needs."

German Greed.

Dr. Rouse, writing in the *Cambridge Magazine*, emphasizes the fact, as it is now being generally recognized, that the attitude of Germany and Germans towards England is the result of deliberate teaching in school and University. He writes of his own experiences in Germany, and is convinced that the War owes much to the passion of greed that has been deliberately fostered. He went to Germany in 1888 and mixed with ordinary people, householders and students. "I found my friendly feelings requited with undisguised hostility; these ordinary people told me that their nation intended to invade England some day and take our colonies. This seemed to me then a childish idea, apart from its morality; but very soon after it emerged as a political purpose, frankly admitted in words, especially in the naval agitation, and clear also from deeds. It was not until long after that I learnt how the idea of spoliation had been fostered through the schools and Universities. It has been admitted finally since the War

began: 'We are fighting England for loot' was the phrase."

The Future of Education.

"THE permanent well-being of English education, and its wholesome development in years to come will depend on three things—first and foremost, upon the spiritual vitality of the nation; secondly, upon the wise exercise of the authority of the State; and, thirdly, upon the continuance of initiative among individuals and groups, combined with readiness to subordinate any selfish interests to the requirements of a general plan, framed in the interest of all." These words were written by Mr. Sadler sixteen days after the War broke out, and are published in *Indian Education*. Mr. Sadler argues that the national crisis will reveal the necessity for State action on a scale not hitherto contemplated. "During the months or years of danger which may lie before us," he says, "the State will be the main stanchion upon which the great administrative fabric of British education will rest." We shall look to the State for guidance in administrative matters, and we shall expect the State to deal wisely with private initiative and enterprise. Some of our readers are proprietors of private schools. They will note the importance of the third requirement quoted above.

Private Initiative and the War.

WRITING last month on the subject of private schools, we pointed out one way in which they will be affected by the War. Although the secondary schools officially known to the Board of Education number only about one thousand, there has been a marked and growing tendency to tighten the organization of secondary education, and consequently a growing possibility that the secondary-school system might be utilized by the Government of the country for the inculcation of political ideas. For the last ten or twelve years it has been the custom to point to Germany as a model of what organized education should be. The greater freedom of criticism that has resulted from a state of war has brought home to many people that the much-vaunted German culture consisted largely of a number of ideas formulated by those in authority and firmly taught throughout schools and Universities. This is not the English idea of culture, which aims rather at the individual power of thought and judgment. We pointed out the value of private schools as a bulwark against the possible encroachment of the State, and called upon these schools to show themselves worthy of the trust. It was pleasant to receive a letter from Mr. M. E. Sadler cordially endorsing our views. There is no better friend to liberty in educational matters than the Vice-Chancellor of the University of Leeds.

Douglas Lee Scott.

WITH great regret we record the death of the Rev. Douglas Lee Scott, Head Master of the Mercers' School, which occurred at the end of October after a very brief illness. He died in harness as a man may hope to do. At the Mercers' School his loss will be deeply felt; he had won the affectionate regard of the boys and the staff alike. At the Council of the College of Preceptors he will be equally missed. He became a member of the College in 1879, and a year later was elected to the Council, on which he has served ever since, for a period of thirty-four years, freely giving the Council the benefit of his sound judgment. Dr. Scott was a Grecian at Christ's Hospital, and went from there to Peterhouse. In 1869 he became a Senior Optime, and took a class both in the Classical Tripos and in Theology. For two years he was a Master at Dedham Grammar School in Essex, now closed. Then he became Head Master of Spalding Grammar School; two years later of Aske's School, Hatcham; and in 1879 of the Mercers' School, the same year in which he joined the College of Preceptors.

Professional Classes War Relief Council.

THE professional classes will suffer no less than other classes of the community from the financial strain involved in the continuance of the War. No very definite action in aid is to be expected from the Government, but a Professional Classes Relief Council has already been formed in order to consider the circumstances and to make what provision shall prove possible. This Council is widely representative. Here we are mainly concerned with the Education Section of the Council, of which Sir John McClure is the President. There are two especial difficulties to be taken into account. Financial pressure is already involving the removal from schools of pupils who would normally continue their education. If this necessity is widely felt, it becomes a National disaster that the education of a number of children should be cut short. Many schools are now feeling the financial pinch resulting from the withdrawal of a number of pupils. To remedy these two difficulties the Council appeal for donations, which should be sent to the Treasurer, 13 and 14 Prince's Gate, S.W. The immediate object of the Council is to enable children to go to school who would otherwise be prevented, and to enable children to remain at school who would otherwise be withdrawn.

War Books.

WHEN the emotions are deeply stirred, there is probably less inclination to read fiction; but it does not follow that fiction is not written. Prof. Sadler, speaking at the Annual Meeting of the National Home-Reading Union, reminded his audience that Miss Austen produced her novels during a period of critical struggle. She was no doubt stirred by it, but there is hardly a trace of war in all she wrote. But if the issue of novels this autumn should prove to fall short of what it would be in normal times, there is no lack of activity among the publishers. In our list of "Publications Received" the titles will be found of many books and pamphlets of especial interest at the present moment. In particular there are the Oxford Pamphlets and the publications of the Victoria League. Teachers

will find plenty of material to enable them to keep fully informed upon all historical, political, and moral aspects of the War. We may mention, among many valuable issues, "Britain's Duty To-Day," by Canon Lyttelton; "To Girls in War Time," by Clare Goslett; "Modern Germany and the Modern World," by M. E. Sadler; and "The Meaning of the War," by Frederic Harrison.

SUMMARY OF THE MONTH.

Joint Conference of Educational Associations.

The Third Annual Conference of Educational Associations will be held as usual in the University of London, Imperial Institute Road, S.W., during the week beginning January 4, 1915. The opening address will be given by Bishop Welldon on the afternoon of January 4, and during the week fifteen Educational Associations have arranged about thirty other meetings. There will be an extensive Publishers' Exhibition in the East Gallery of the University buildings. On account of the national crisis several of the Associations represented on the Committee are unable to organize meetings, but members of all of them will be welcome to any of the open meetings.

The Effect of the National Crisis on Education.

The Central Authority of the State will have a new meaning in future for English education. By general consent, since the beginning of the War, we have accepted, welcomed, the prompt and decisive assertion of the power of the State in questions of internal communication, in finance, in the organization of the relief of distress, and even in industrial undertakings. What has been done in these other spheres of national effort must in due course show itself in the domain of education. For some time it has been clear that any great shock of national struggle would reveal in English education the necessity for State action on a scale not hitherto contemplated. During the months or years of danger which may lie before us the State will be the main stanchion upon which the great administrative fabric of British education will rest. After the War this influence, though it may be modified, will not disappear. The permanent well-being of English education and its wholesome development in years to come will depend upon three things: first and foremost, upon the spiritual vitality of the nation; secondly, upon the wise exercise of the authority of the State; and, thirdly, upon the continuance of initiative among individuals and groups, combined with readiness to subordinate any selfish interests to the requirements of a general plan, framed in the interests of all.—Prof. Sadler, in *Indian Education*.

The Test of War.

The War is a test of the products of German education, of French, and of English. Each has its weakness, each its strength. The struggle will show which has fostered the nobler discipline, which has given the greater power of initiative and scientific co-operation. The shock between the armies of Germany and of the Allies will show on an immense scale the merits and the weaknesses of German training and the defects and noble virtues of our own.—Prof. Sadler, in *Indian Education*.

University Students and the War.

The *Oxford Magazine*, writing upon the diminution in the number of University students, says: "We believe that this disaster can be averted, but in one way and in one way only. It is the path pointed out alike by the shrinkage in the numbers of undergraduates and by the national need for trained officers. The first step lies with the Colleges, the second step with the O.U.O.T.C., the third with the War Office. The Colleges must entirely change their entrance examinations — Latin proses and Greek unseens must no longer bar the path to entrance to a good College; the requirements as to character, on the other hand, should in no way be relaxed. Men should be allowed to come into residence as members of a College without undertaking to read for any of the existing University examinations, and without contemplating any special period of residence. Every opportunity should be afforded to every gentleman of military age to join the College to which he wishes to belong. However great the breach from tradition, we feel that this is the course dictated to the Colleges alike by a desire for self-preservation and by the nation's needs."

Belgian Child's Trust in British Khaki.

The deaconess of a Liverpool home for incurables, in sending Lord Roberts 10s. for the Indian Soldiers' Fund, tells a delightful story showing the trust and affection which the British soldier has inspired in the hearts of the people of Belgium. A neighbour had adopted two Belgian children—a boy and a girl. The little girl cried all through the first night and all the next day; she could neither eat nor sleep, and utterly refused to be comforted. Late in the evening the family doctor called, clad in khaki. Scarcely had he entered the room when she ran to him with outstretched arms, crying: "Bittish! Bittish!" She nestled in the doctor's arms, almost immediately fell asleep, and slept the clock round.

Appointments.

The King has been pleased to approve the appointment of the Rev. John Pentland Mahaffy, D.D., to be Provost of Trinity College, Dublin.

The Local Examinations and Lectures Syndicate of the University of Cambridge have appointed Mr. Walter N. Williams, M.A., LL.B., Fellow and Lecturer of Selwyn College, late Scholar of Trinity College, as Assistant Secretary for Examinations.

The King has been graciously pleased to make the following appointments to the Royal Victorian Order for the Oxford tutors of the Prince of Wales:—To be Knight Commander: Thomas Herbert Warren, Esq., President of Mary Magdalen College, Oxford. To be Commander: Charles Grant Robertson, Esq., Fellow of All Souls College, and Senior Tutor in Modern History at Magdalen College, Oxford. To be Members of the Fourth Class: Henry Edward Berthon, Esq., Taylorian Lecturer in French Literature in the University of Oxford: Hermann George Fiedler, Esq., Taylorian Professor of the German Language and Literature in the University of Oxford; Arthur Lionel Forster Smith, Esq., Fellow and Tutor of Magdalen College, Oxford.

The Directors of Merchiston Castle School have appointed Mr. Cecil Stagg, B.A., Assistant Master at Marlborough College, to be Head Master, in succession to Mr. George Smith, M.A., who recently became Head Master of Dulwich College. Mr. Stagg was educated at Clifton College, Bristol, and at Caius College, Cambridge.

University Correspondence College.—On Friday, November 20, the Twenty-fifth Annual Reunion of University Correspondence College was held in the Caledonian Room of the Holborn Restaurant. In spite of the War, there was a fair muster of tutors and past and present students, Dr. Briggs, the Principal of the College, presiding over some seventy guests, of whom a number were in khaki. A reception by the Principal preceded the dinner in the Caledonian Room, which was followed by speeches and an enjoyable program of songs and music. In addition to the usual loyal toasts, the following were drunk: London University, University Correspondence College, The Past and Present Students of University Correspondence College and University Tutorial College, and University Correspondence College Students at the Front. In proposing the toast of University Correspondence College, the Principal gave an interesting account of some of his adventures on the way back from Australia, whither he had been with the British Association in the summer. These adventures included a two days' run at full speed, with closed port-holes and lights out at night, in close proximity to the notorious "Emden." The Principal then went on to say that University Correspondence College students, after having inscribed their names in imperishable ink on the bead-roll of London University, had now opened another Roll of Honour of a very different kind. Over two hundred present students of the College had already joined his Majesty's Forces to share in the defence of the country, and it was certain, as well as desirable, that more would follow their example.

EXERCISES FOR TEACHERS AND OTHERS.

By Eustace Miles, M.A.

III.

In the first two articles of this series, after emphasizing how the life of most of us had changed recently to a sedentary life in not too good air, and how the diet of most of us had not changed accordingly to a diet less rich in fuel-foods for the muscles, I tried to suggest some useful exercises for teachers and others. I strongly deprecate, for the majority of these readers, the strain-and-stress gymnastic movements that may, perhaps, suit the professional athlete or would-be "strong" man.

I chose, as specimens of simple exercises, one kind of deep breathing, which could, after practice, be retained for a few seconds while the "muscular" breathing was brought into play. Then there was the early morning walk or the alternate walk and run, then the skin-drill, then two kinds of gentle stretching movements. In our little Physical School in Chandos Street we find these movements of great value to sedentary workers. Whatever healthy exercises ordinary people do or omit at special times, they should not omit the deep and full breathing at frequent intervals during the whole day, and, in case of waking moments, at night also.

Now for two more exercises—a great contrast to each other. Stand, preferably with bare feet, and keep the chin in, the shoulders back and down, and the small of the back hollow. Now, rising from and coming back upon the toes (well opened out) and the balls of the feet, hop on the right foot a few times, having the left foot and legs stretched out straight in front of you, with the knee well braced back and the toes as far down and away from you as they will go. Then hop the same number of times on the left foot, with the right foot and leg stretched out similarly. Next do similar exercises with each stiff leg in turn stretched, not forward, but back. These are two simple examples of exercises to help the circulation, improve the shape of the feet and ankles and legs, strengthen some of the leg and trunk muscles, and relieve the brain of blood-pressure. Do not go on hopping when once you begin to feel out of breath or at all tired. Stop then and either breathe deeply and fully, but without strain, or else relax.

I have described a relaxing exercise on page 46 of a little shilling book called "Curative Exercises." I quote from it here:

> Cease—that is a better word than "stop"—and keeping your lips gently closed (not your teeth clenched), breathe deeply and fully in through your nostrils, hold the breath a moment or two, then let it ooze out slowly, as an india-rubber bladder empties itself of air.
>
> And, as you let it ooze out slowly—please read these words slowly, too!—let the muscles of your hand grow limp and dead; let your fingers and hands and arms hang down quite heavy by your side like bits of sodden cotton-wool at the end of a piece of string. Do not "hurry up." Stay there relaxed like a drooping plant. And—for you are in private now and need not shrink from behaving sensibly—smile. Let your eye-muscles relax.
>
> Every time you exhale, exhale not only the carbonic acid gas and other poisons, but also all ideas of worry, all anxiety, all fear, all hurry, all ill-nature, all resentment, all ugliness, all effort and striving, all doubt. Sink down, and call up in your memory and imagination things sweet and restful—for instance, the delicious moment that comes after the relief of toothache.
>
> Then, when you are tranquil, when you feel no feelings against anyone or anything (or even against yourself), quietly lift up your head, and, as you take a deep and full breath in through your nostrils, open your eyes, pause for a few moments, and come back into the world and know that in future your health, your sanity, your poise, your power will depend not only on food, but also on repose.

The three articles that are concluded here offer only a few suggestions of different types of exercises that seem to me valuable for sedentary workers and many others. May I finish with a word of advice? Take an interest in scientific physical culture for your own sake and for the sake of those whom you teach. The simple little movements that I have tried to describe will, I believe, form the nucleus of really important investigation and experimentation along new lines. Do not rely on any *one* "system," however well advertised. Rely on yourself; make up your own exercises; take a real pride in your own physical inventions; regard the culture of your body as a recreation in the literal and also in the later meanings of the word. Do not associate physical culture with the idea of unpleasant duty; associate it with the idea of a hobby in which you can develop *originality*.

THE TEACHING OF ENGLISH PROSE.

By S. P. B. Mais, M.A., Sherborne School.

Nothing is harder to teach than the cultivation of taste—the beginnings of a real enjoyment in the masterpieces of the English language. No modern master who is at once a keen and clear thinker, and not given to wilful blindness as to the results of much so-called teaching, can neglect the obvious fact that those things that are carefully thrust down a boy's throat at school are the very things he instinctively avoids afterwards. Personally I can never be sufficiently grateful for the fact that I learnt absolutely no English at school. From the classics and mathematics I have, because I specialized in each, a distinct and inevitable aversion, but for English, which I first learnt at the hands of Sir Walter Raleigh and Dr. de Selincourt at Oxford, I have a more real passion than for any subject I have ever taken in hand—a passion that will certainly remain as the predominant feature of my life as long as I live.

It is therefore with a peculiar dread that I confront a class for the first time in order to inspire in them a zeal for English literature, fearful and trembling lest, instead of inspiring them with any zeal, I shall not rather drive out any seeds of love for the great masters of English already sown by desultory reading at odd times in out-of-the-way places.

After five years of such teaching I am still uncertain whether the best way would not be to put Shakespeares and Chaucers, Miltons and Wordsworths, Addisons and Scotts—in fact, all the myriad giants and gods of literature—in front of them, and let the boys browse to their hearts' content while I sit correcting mathematical exercises, ready to be consulted by individuals only when an insurmountable difficulty arises. Up to now, however, I have given way to temptation every time and persisted in giving elaborate discourses on every author, read in the course of a term commenting on the life and times, the predecessors and scucessors of the man under consideration, and generally unloading my brain of all that it knows, much that it conjectures, and a great deal about which it is really ignorant. All the time I find in my heart of hearts that I am trying to defend myself—that is, that I feel that something, I know not quite what, is wrong, and that I am not working on ideal lines. Yet, as I said, the temptation to talk is too great. Custom and tradition are too much for me, and my own personal idiosycrasies mingle in the minds of my hearers, so that, instead of reading Chaucer and Shakespeare, unpolluted, undefiled, they get a strange mixture of Maisean-Shakespeare and Maisean-Chaucer. I attempt to delude myself into believing that by this means I redouble their pleasure and halve their difficulties, which, as a matter of fact, I believe to be right; but if Arnold Bennett's thesis is true—that, just as a man who wishes to become +1 at golf has to work like a galley slave to accomplish his object, so he who would acquire taste in literature must work with all his faculties sharpened, ready to combat fatigue and undergo heavy and arduous labour in order to attain his end—if this thesis is true, then my extraneous help will only hinder their ultimate pleasure and double their difficulties after they leave me. A cricket professional does not play your game for you; he gives you, when necessary, a clue; he teaches you what to avoid and then sits tight and watches you. Much in the same way, I take it, does the ideal teacher inculcate enthusiasm for reading in the right way.

I find also from the start thousands of misconceptions arise about the use of reading, which I have to eradicate before I can begin to teach anything. For instance, nearly every boy with whom I come into contact seems to be possessed of an extraordinary theory, closely allied to snobbishness, that

the aim of reading the best books is to improve the mind in some subtle way, to pass examinations, to amuse the hours of leisure, to show his superiority to his neighbours or the girl on the pier with her paper-covered Garvice or Corelli, or, worst of all, to be able to say he has read them and compare everything that happens to him to something in classical literature, like the wholesale underwear provider, Tarleton, in Shaw's "Misalliance." It never seems to cross his mind that reading is life, that he might just as well —nay, rather, he were better to — go without his meals than without good books.

Good reading is the secret of good living; great literature properly read enables a man to understand the beauty of the fields and the woods and the lakes and the mountains and the rivers and the sea, the ecstasy of living, and the right and only true way towards intercourse and sympathy with his fellows. If reading does not do this, then the reader is wasting his time and not really reading at all. He needs to be taught, he needs to work harder, he needs to readjust his theory of life altogether. I find that I have to remind boy after boy of my own personal failings in bygone years by quoting the time when I thought that good reading meant the being seen with a book like Bradley's "Shakespearean Tragedy" always in my hands, always apparently poring over it, never in reality either fathoming its depth or the least interested in its contents. That I could ever have been such an appalling fool is a salutary lesson to me even now, and I find the mere recital of past follies of this nature does me good and my form no harm. Having started with some such remarks as these to a fresh class of boys at the beginning of term, I then tell them to procure a copy of Lamb's "Essays," the selection of the thirty best short stories in the English language published in "The World's Classics" (No. 193), and either R. M. Leonard's or Miss S. L. Edwards's "Anthology of English Prose" (I am, of course, only dealing in this article with the teaching of prose). I do *not* set an essay on "People who live in glass houses should not throw stones," or "Bachalet's System of Locomotion," or "The Question of the Far East," or "Modern Politics," interesting and important as these are at a later stage. My first three preparations at least are "Read on," "Read on," "Read on." Often in class, so little time does the modern public-school boy get to himself out of school, do I hold myself in and refuse to pander to my inclination to talk and explain, and just go on with my own work and let the form go on reading. Only when they have had a real chance of steeping themselves in one or more of these books do I step in at all, and then at first only after the nature of the following dialogue:—

I: "Well, Jenkins, how's Lamb going? Bored?"

J.: "No, sir."

I: "Truly? You really like all the essays immensely?"

J.: "Well, not quite all, sir."

I: "That's more like it. Tell me off-hand which you like and which you don't."

J.: "I like the thing about roast pig awfully, but 'Dream Children' and 'Grace before Meat' struck me as dull."

I: "What about 'Imperfect Sympathies'?"

J.: "I didn't read that, sir; the title put me off"; and so on.

I then try to explain that it is only natural that a great deal of all they are reading will at a first reading bore them intensely, but that it is essential to remember that this boredom proves a narrowness and a film over their inner vision which can only be widened and removed by assiduous and energetic toil. I then, giving way to temptation, try to show wherein lie the beauty and fascination of such an essay as "Dream Children" by giving the form some facts about Lamb's life, with the result that, in many cases, I see boys' faces light up with sudden recognition of some greatness in it that had escaped them before.

That there is something valuable to be gleaned even from a master came home to me with force when I asked a boy the other day what he had read in the holidays. When he replied, "Nothing much but *Nash's* and the *Red Magazine*," I asked him if he had read Kipling's story about Hervey. He said he had, but could make nothing of it. I then told him the story about Dr. Johnson, and "if you were to call a dog 'Hervey' I should love him," and it was a rare pleasure to see the sudden light on his face as he realized in full force the appeal and magic of the story; just the one clue had been lacking. This is one instance out of thousands.

In my London Matriculation class I find myself giving out a question from an old paper requiring comments on, say, nine Shakespearean characters. Lucky are the boys who get 50 per cent. right. I then set apart preparations for the reading of several plays. When these plays are read, I suggest that perhaps the form have not gleaned all that might be expected, and proceed to take one scene in detail, quietly explaining points that might have escaped them, such, for instance, as that in "Henry IV," Part I, where Falstaff says "their points being broke," and is interrupted by the ragging Poins, "Then fell their hose." I explain the pun on the word "points" as meaning both "braces" and the points of a lance, and the form at once are delighted; or, again, in "Macbeth," when Macbeth, knowing full well that Banquo is to die, says: "Fail not our feast"—to which Banquo rejoins: "My lord, I will not," and does not, for his ghost keeps the appointment, wellnigh unhinging Macbeth's brain. Such typical explanations lead the form to read with greater care in order to see for themselves other striking features that would escape the ordinary casual reader.

When I think that a sufficient number of essays, short stories, and extracts from the anthology have been read, I take one piece that all have finished, and we endeavour collectively to find out precisely how the author gained his effect, how far his individuality permeates the selection, how much he differs in style, form, and matter from other men of his own and then of far remote ages. We then compare, say, a piece of Walter Pater's "Leonardo da Vinci" with Sir Thomas Malory's "Morte d'Arthur" and Dryden's "Prefaces" to see the changes that have come over the writing of prose in the passing ages. In the same hour, in order to relieve any possible monotony, each boy makes lists of words out of any one essay which he does not properly understand and endeavours to supplant them in the text by synonyms—a most useful exercise, for this teaches him, as often as not, how frequently an author has used the one word which will exactly fit the context and how any other word, however similar, would entirely alter the meaning which the author is endeavouring to convey.

From this we pass on to, say, a short story like "Markheim," and notice how essential it is that the short-story teller, above all men, must keep his mind on the one main fact he wishes to present—how everything is sacrificed to this unity of aim, how every sentence has somehow a direct bearing on the narrative, and how the elimination of a paragraph would ruin the whole effect. After an hour spent in school in this way the form will disperse—not, as before, to reading more, but to construct a short story with "Markheim" as a model, to concoct a skeleton essay—that is, the beginning, middle, and end—not in words, but in thoughts (for my form naturally know the very important story told of Dumas, who met a man and informed him that he had just finished a play, to which the other replied: "May I read it?" "Oh! it's not written," said the author), to compile lists of synonyms, or to produce a series of original criticisms on a scene of a play they have recently read, just as it takes their fancy.

Notice that immense scope is given as to the preparation done. I do not believe my form to be all Poets Laureate, capable of turning out poems on births, marriages, and deaths to order. I like them to work as the fit takes them—on one out of a thousand suggested subjects. To pin a boy down to write an essay on one particular subject, about which he may know nothing or at the moment care very little is the height of folly. My boys write on subjects on which they are, at any rate for the moment, keen, and on subjects about which they are, up to a point, quite familiar. What I mean is that in May I take essay after essay on birds'-nests from my natural historians, because they get out every day into the country and see something fresh, something strange.

My Debating Society devotees, strongly biased, write invariably on some passing political event, and I do my best to quarrel. My Irishmen write quite naturally on what to them is the one pressing question of the day. As a consequence, I am an editor in miniature, who is in the happy situation of having to refuse no sort of work so long as it is true, so long as it is honest, and dishonesty vanishes very

quickly in a society where each member has to submit his work to the severe task of reading it aloud to the critical audience of his own form companions, each of whom makes notes while it is being read, and is encouraged to read his criticism aloud immediately afterwards. Knowing that he is a fool when he criticizes adversely the work of a genius that bores him, when it comes to the immature expression of a boy of his own standing he lets himself go and gains immense satisfaction from the detection of loose phraseology, loose thought, and bad craftsmanship in his contemporaries. But while, by the way, I agree that a boy is only exposing his own ignorance and need for harder work if he is frankly bored by the work of a man who is universally recognized as a genius, I do think and always insist that a boy should have professed affection for one great man at the expense of another.

To expect all boys to be able to read with obvious delight all the novels of Scott, Thackeray, and Dickens is to expect an impossibility, while the reading of a novel of the length of the average Scott in form is a sheer waste of time. My worst failures (and he who is constantly experimenting gets many of these) have been the attempts to rouse interest in the great novelists by treating them as a form subject. That they should ever be set in the Oxford and Cambridge Joint Board Examinations only goes to prove the short-sighted policy of the examiners. A boy either reads a Scott or Dickens novel for sheer delight or not at all. He is certainly not going to gain any sort of profit by remembering words or contexts; plays, essays, criticisms are different. Examinations may be (I very much doubt it) of some value here, but to examine a boy in a novel is a foul perversion of rights. You might as well give him a written examination in his letters home or his cricket scores or his talks and walks with his most intimate friend. It is an outrage on his liberties. A boy reads, not that he may be able to retail all the quaint conceits and difficulties of the book read, but so that he may enjoy life better, and understand it more, as I said at the beginning, that he may come to the point of being able to write himself, to express in words his inmost thoughts, his personality. His essays should be the best expression of his own identity, something to keep, by which he may gauge his capabilities, progress, and character—something to which he can look back from time to time and say: "Thus and thus was I last term. Well, I know better now, any way." There is only one reason why he should write at all—because he has something to say, something that nobody else could say, something that, to the best of his knowledge, nobody else has ever said. It is to this end and that which I expressed at the beginning of the article that we teach him English at all. Both the Army and the London Matriculation require that we should teach our boys précis, and I find this an invaluable, if not altogether an imaginative, exercise. To wrest the heart out of a passage requires, in some slight degree, the same powers which characterized Dr. Johnson, whose genius led him to tear the heart out of a book where other more terrestrial mortals would wade through page after page, chapter after chapter, fearful lest something of worth escape them. To be able quickly to epitomize, to gauge the thought behind the words is no mean advantage, whether it is in short or long works, and he who is capable of making a satisfactory analysis of a thousand words will in the end be able to reproduce clearly and coherently the substance of a hundred thousand without missing much.

I do not wish to conclude my remarks on this subject before I have made some comments on the work of Mr. Caldwell Cook, who has lately issued his fourth volume in the series of "Perse Play Books":—"The Play Method of Teaching Prose." I cannot enter into a full criticism of this work, for he has not long been teaching, nor has he shown us much of the results of his methods on boys of the age we meet with at public schools; but, by reproducing the short prose works of his pupils aged from ten to thirteen years, he has done us invaluable service by showing where ordinary sane treatment leads us. There are, of course, hundreds of us all more or less pioneers who could publish work of the same type, original, praiseworthy, encouraging; but it is as well to have one man as a stock example, to whom we can point as the average modern schoolmaster, who is no longer content to travel on the stereotyped lines of his ancestors, but is going to carve out a new path of salvation for himself. For the sake, then, of readers who are unacquainted with his methods I will endeavour, very shortly, to acquaint you with his ideas. In common with the rest of us, he makes the stirring of the imagination a *sine qua non*. Unless your object is to rouse hidden faculties, to give the soul wings, you had better leave the teaching of English alone. On that point I think we are all agreed. Secondly, he urges that his object is to make lessons enjoyable. Those who have read the works of "Fourth Form," Edmond Holmes, and Dr. Maria Montessori will at once recognize that here is another adherent of theirs. Again, there are very few modern schoolmasters who do not try, heart and soul, first to make such lessons as are essential a source of true joy and interest to their pupils. This obviously, as I have said twice before, is the true end of education.

In order to do this, Mr. Cook advocates an imitation of the best models, and gives as an example a series of splendid boy essays founded on Leigh Hunt's "A Now." The difficulty, of course, that attaches to this is that the originality and invention which he and all of us maintain is of such paramount importance are apt to disappear if any rigid attempt at imitation is made. I am of opinion that any imitation ought to be of an absolutely unconscious kind. We read the Bible, we read Shakespeare, and, all unwittingly, our style is modelled to a certain extent on each of these. Carefully to model oneself on Pater or Stevenson would be disastrous, even when we grew up, and would be far worse for us as boys. I therefore reluctantly part company with Mr. Cook on this point, though I would beg readers to read for themselves his arguments on this point, to which I feel I have scarcely done justice. Following on this, Mr. Cook gives us his scheme of marking. Each essay shown up in his form has so many marks attached for invention, so many for expression, so many for neatness.

Now I may as well confess at once that all the marks I ever give—α to γ (I never mark in the arithmetical sense; if boys cannot work without that goad they are not really working in the true sense at all)—I give for one thing only, impression. The impression the essay makes on me is either α, β, γ with plus or minus. As most of my boys are candidates for Sandhurst and Woolwich, their neatness and accuracy of spelling are obviously good; but I firmly believe that an essay can only be marked in one way, and that is by the impression it makes on you at, say, the third reading.

I have left myself no space in which to describe further Mr. Cook's interesting experiments, but I would, in conclusion, draw the attention of all readers to his remarks on the spirit of groups as opposed to the individual. He is firmly convinced that the success which has attended his efforts of the last two years is due, in the main, to the fact that his classes work together as a corporate body, and tend to have a corporate mind, so that the outpouring of the individual member is the outpouring of a unit belonging really to a larger body, and thereby possessed of some of the spirit of the whole corporation. He does better work and true work because of his membership than he would if he were a single individual working alone. It is an interesting idea, and, to my mind, worth all the rest of Mr. Cook's ideas put together. Most of his other notions have been in use for five or six years at least in various schools with much the same result; but in this theory, to the best of my knowledge, he is really a pioneer, and in this belief I wish him, as one discoverer to another, good luck in his voyage, and may he attain the results he deserves!

Resignation of the Head Master of Bradfield College.—The Rev. H. Costley White, who in 1910 succeeded the Rev. Dr. Gray as Warden and Head Master of Bradfield College, near Reading, has tendered his resignation, to take effect at Christmas.

At Leeds University, on the 17th inst., M. Emile Verhaeren, the Belgian poet, received the honorary degree of Doctor of Letters. Prof. Gordon, who wore officer's uniform, in presenting M. Verhaeren, said that the University conveyed to him by the symbolic ceremony its sense of his value to the world as a great poet, a great patriot, and a great man. If any man in these recent months was conscious of surprise at the tragic resolution of Belgium in face of force so tyrannous and overwhelming, let him read the poems of Verhaeren.

THE FOUNDATIONS OF CHRISTIAN EDUCATION.*

Translated by S. E. Howe.

We call the present century the child's century, and imagine that we have reached the height of educational possibilities, because our methods are apparently so perfected; in reality, our century is much weaker in educational strength and decision than the preceding centuries, when faith was more common. The study of transient facts alone cannot produce discipline; only eternal truth can do so, and the former only if it is combined with such truth. But because immutable truth is no longer acceptable, many modern parents refrain from authoritatively regulating the moral development of their children. Their own convictions are so hypothetical and hazy that they feel unable to influence even their babies. The natural consequence, therefore, is that the young generation rule over and dictate to their elders as to how they wish to be brought up. The following words of a critic who lived more than a hundred years ago are descriptive also of to-day:—"Formerly the teacher aimed at raising the child to his own level; to-day, however, he prostrates himself before the child." Truly, the teacher who does not kneel to God must soon come to do so to the child, and its wishes will become the guiding standard of education. When education ceases to be directed by Him who has overcome the world, but takes its lead merely from the observation of human life, then adaptation to the human—the all too human—must predominate. The teacher, in that case, will lack the liberating strength which is gained only by Union with the higher life.

I should like to express my deepest conviction at this point that, for the above-mentioned reasons, a Christianity which no longer accepts the Son of God, and which looks upon itself as a temporary and relative phenomenon, has lost its efficacy for character training, and has no authority over the crushing power of the temporal. By making Jesus a man liable to error we lose our hold on reliable truth. The Redeemer of the world is then lost in the great whirlwind of souls revealed to us by history. We can almost hear the howling of the storm as it drives the generations restlessly along. Everything is relative, subjective—all is evolution. No longer is there certainty in life and in death, and the words "Heaven and earth shall pass away, but my words shall not pass away," are, in that case, nothing else but the raving presumption of a lunatic.

To the unbelieving modern man, and also to the majority of men holding latitudinarian views, the doctrine of the Incarnation is a stumbling-block. But another generation will arise which, born and bred in a state of alienation from God, will, through this same alienation, grow to understand anew how truly this doctrine answers the deepest needs of the soul. Those of us who have come out of unbelief into Christian truth—we, at any rate, cannot be satisfied with a doctrine which represents Christ as mere man. It offers us nothing, and is unable to explain our experience of the Saviour. Napoleon once said, "Believe me, I can understand man—Christ was more than mere man." He who understands human nature, and also himself, cannot contemplate the life and death of Christ without being compelled to exclaim, "My Lord and my God."

In the doctrine of the Son of God the foundation of all true education is to be found. In the Son of God the Creator stoops to the creature and draws him up to Himself. Clement of Alexandria expresses this idea in terse language: "God has become man so that we should learn from a man how to become like God."

And now as to the *definite* aim. What is the attitude of modern education towards precision of aim? As character and consciousness of purpose are practically identical, such precision decides the results of character-training. I am sure you will agree with me that this quality is often lacking. All the merely "human" ideals are tainted by the results of our frailty, and are unable, therefore, to raise man above himself. As the laws of mathematics must be known in order to control external nature, so we need purified ideals and principles to regulate passions and desires. He who has overcome the world and has actually reached the goal—only He can lead us into a clear consciousness of aim; without Him we grope in dimness of perception.

By many modern idealists a new password is given out to the world: Self-Redemption. This is a Utopian dream, revealing an absolute lack of insight into human nature, and reminding us of the story told by Baron Münchhausen about the man who pulled himself out of a bog by his own hair. True, man's higher self should co-operate in this work of redemption, but, unfortunately, this higher self is so interwoven with the lower desires—pride, selfishness, vanity, the craving for domination—and is so utterly without defined purpose of aim, that it will awaken to the full consciousness of its own being and destiny only when it beholds the glorious perfection of Christ. As in the day of creation, earth was divided from water and light from darkness, so the differences of our two-fold nature become apparent in the light of Christ. We are then given a firm vantage-ground from which to reorganize the chaos of our inner life: what is high and what is low become distinct. In the Epistle to the Hebrews we find a verse which expresses most graphically the process by which Divine Truth penetrates into man's heart. "The Word of God is quick and powerful, and sharper than any two-edged sword, piercing even to the dividing asunder of soul and spirit, and of the joints and marrow, and is a discerner of the thoughts and intents of the heart."

The present-day hazy cult of personality is due to the fact that the aims of modern educationists are not determined or dictated by Christianity; hence the ideal of personality is only the reflex of the chaotic condition of the human soul. A clear distinction is no longer drawn between the carnal and the spiritual, the inward and the outward world. Character-building on such a basis lacks the essential qualities of decision and firmness of aim. If we consider the results of this propaganda, we find much aggressive self-assertion, pushing of self, and vanity, and many actions which are in reality caused by the dictates of sensual passion—all these are justified by ascribing them to "the following out of one's personality." Napoleon was one day reviewing a regiment when a corporal stepped forward and said: "Your Majesty, I am made of the wood out of which majors are carved." "I will remember you when I require a wooden major," was the Emperor's reply. Much of the present-day culture of the ego, with its self-consciousness and insistence, reminds one of this soldier, and must, like him, be doomed to fall a victim to the ridiculous.

An equal want of precision strikes us in the conceptions of self-respect and the sense of honour as they are represented in modern literature. To the Americans belongs the merit of having brought to the front the supreme importance of the appeal to self-respect and to the sense of honour, and of having done this from a new point of view. There is a distinct need for these two conceptions to be clearly defined and Christianized. Surely the first question is: "*Which* self is to be respected?"

There is a form of self-respect which comes from an unenlightened conscience, and, though keeping man from a good deal of what is low and mean, leads him away from a deeper truth and on to self-sufficiency, which results ultimately in the death of the soul. Such self-sufficiency is incompatible with a "broken and contrite heart." As to the sense of honour, we know only too well how greatly that is influenced by unchastened self-consciousness and slavish dependence on outside opinion; therefore, the fostering of these feelings must intensify the opaqueness of character. Do we not know how the sense of honour, unless regulated by the highest forces of character, may become a motive for crimes of passion? The greater the place we assign to self-respect and honour in our educational systems, the more careful we must be to liberate these feelings from all alloy, by instilling ideals which are spiritually clear. Only the Christian religion, by the brightness of its light, can divide the higher from the lower; it defines unmistakably the tendencies which lead upwards from those which lead downwards; it purifies the idea of honour and prohibits its union with foolish and dangerous emotions. It alone gives the necessary precision

* A lecture delivered by Prof. F. W. Förster, of Vienna, at the Eighteenth German Evangelical Educational Congress held at Cassel, 1913.

to the conception of self-respect, and it prevents those elements which should be eradicated, from being nourished.

And now a word about the *universality of aim.* He who penetrates profoundly into the laws governing character will realize how exceedingly important is a right balance of influencing agencies. Every virtue can become a vice, unless it is balanced by other forces and acquires right proportions which can be gained only by a vision of human completeness. "In the midst of life we are in death" can also imply that our best and most vital tendencies may lead to the death of the soul if once they get a one-sided sway over us. They require the correcting and complementing influences of other equally important spiritual forces. But herein lies the uniqueness of the guidance given by Christ to the soul, that the Saviour is above all human one-sidedness—that He unites qualities apparently incompatible—love and force, consideration and energy, contemplativeness and will, humility and firmness.

It is just this balance of ideal for the formation of character which modern educationists lack, and no wonder, as each individual upholds his one-sided theory. Goethe, in his "Sphere of Education," rightly accorded the most important place to reverence. It is the spirit of reverence which breaks down the wall of our rigid self-assurance, and thereby lays our soul open to the influence of something vastly higher and more universal than we are ourselves. This attitude is the condition by which man can be raised above his limitations. However, the teacher requires the spirit of reverence as much as the pupil, if not more. He must live in vital union with Truth; only then will he be enabled to acquire that unerring instinct which he needs to distinguish between true vitality and unhealthy exaggeration in pursuing his reforming efforts and in forming his judgment of new material.

When children look to us for words of Life, do we not then realize our presumption in speaking to them as unit to unit, as we do if we are not in unison with Truth, which alone is able to weld together all that is fragmentary into one whole? Yet no attitude of mind is more alien from the critical and individualistic tendencies of the age than just this spirit of reverence. Consequently, the ideals followed after by man in training himself and others are no longer derived from wisdom and experience, but are the mere expression of individual limitation and one-sidedness. Goethe says: "To-day everyone steps forward as guide and regards his own particular folly as perfection." Such a condition of mind is especially fatal in the sphere of education.

Though the educational literature of the last two centuries offers many valuable intellectual stimuli, gives instructive experiments, and also much wholesome and fruitful criticism, yet at the same time we are conscious of the lack of a steadfast, definite, and truly comprehensive ideal of education. Such an ideal, taking into consideration, as it does, the demands of life, develops the forces of the soul in their rightful order, and thus provides the necessary counterbalance to the hidden dangers to which human nature is exposed. Owing to the lack of balance, even the best and most healthy can, through their one-sidedness, become a danger.

May I be allowed to illustrate with a few examples this lack of balance in our education? Take the new American system for the training of will, or even the American ideal of life. They are finding an entrance even into Germany, threatening to gain dominion over us and our culture. The American ideal is but the reflex of the great industrial expansion, with its cult of breathless activity and its glorification of ruthless will. We all know the titles of these books: "How to become Energetic," "Will and Result," &c. This literature on Will, and the ready appreciation it finds, are signs of the newly awakened need for activity. They also prove that the forces of character are craving for stimulation to energetic activity, as a reaction against inherited dispositions and tendencies. We find in this kind of literature much good advice and food for thought, but we must not overlook the dangerously egotistical one-sidedness of this system of education, and it is therefore of the greatest importance that Christian ethics and education should thoroughly master the question of will training, especially in the Universities. To begin with, it should be dealt with from the ethical point of view, since a one-sided development of mere energy must be balanced by a definite training towards altruism and social service. In all professional training it is necessary not only to study the question, "How shall *I* become energetic?" but also the much more important one, "How can I make *others* energetic?"

Even in regard to all the claims of professional life it is well to emphasize the practice of Christian love.

In all relations of life it would be well to adopt the motto: "Firm as a diamond and tender as a mother."

We must bear in mind how little the Christian spirit influences at present the education of our youths in matters of daily conduct. Boys are left to follow out their "Red Indian" instincts. Active and high-spirited boys should be given the opportunity to expand and deepen their energy; they should not be permitted only to break and destroy, but should be provided with tools, and taught how to repair things in the home; another outlet could be found in life-saving work and First Aid courses, which demand the practice of care and tenderness. Such habits, if acquired in early youth, will further the development of thoughtfulness and of the whole inner life. In this way, not only the compelling energies, but also the constructive and conserving powers, will come into play.

The training of the will should be strengthened by religious influences. It all depends on what we want, and in what spirit we strive to get what we want, not only on the fact of wanting. But the modern prophets of the science of will education forget that the mere development of the natural impulses must, at the same time, tend to an increase of the impetus given to the lower passions which are bound up with our natural will. For the fullest development of a steadfast will there must be a fundamental liberation from the fetters of animal instinct and the cramping influence of self-will, and this can be secured only through religious influence. Real formation of will is attained in proportion to the measure in which we live up to the meaning of the words: "Not my will, but Thine, be done." It is in this sense that Meister Eckhart's ideal of will training is to be understood: "That the will be fashioned into that of God."

A certain danger of the American one-sidedness of education shows itself in the watchword: "A school to work in, not to learn in." True, there is justification for the reproach levied against our schools that they develop in a one-sided manner the receptive faculties only. The practice of activity is an equally important factor for stimulating initiative of character and plastic power. But even in this we may go too far. The want of proportion, the one-sided and excessive value put on the purely productive attitude of life, is the result of the American civilization in which man is considered as a mere machine for work. The *laborare* is made of such great importance that there is no time or space for the *orare.* There ought to be proportional development of the receptive as well as of the productive faculties.

The training in the spirit of reverence, to which Goethe ascribes such importance in the formation of character, presupposes the receptive attitude. Where man is expected to react with visible results, on every suggestion, there reverence cannot thrive: by unduly emphasizing the need for activity, people lose the faculty of receptiveness. If productiveness is the sole aim then will be lost to the world what the classics called "Humanitas"—namely, the study of things *per se,* as distinct from all productive result, and dislike of all such study will ensue. Such a one-sided ideal of culture has also a pernicious effect on character: it will necessarily produce a people unsociable and conceited, unable to listen: unbearable individuals in whom a pushing activity has crowded out all humility, all patience, and all power of entering into the interests of other people. Knowledge of the truths which alone are able to perfectly bless our life and our work results from deep receptiveness, from the "forty days and forty nights" in the wilderness. Side by side with the productive attitude of mind, we need the full unfolding of the soul, when man does not create, but turns to the Creator and lets Him recreate the spirit. When this is not the case, there will develop godless work and soulless culture. Martha is thinking only of how to *do* something for Christ: filled with her own zeal, she has no time to listen to Him, and she remains just her old self. Mary is not active, but passive: however, she assimilates a new life, gets a new aim in life and new motive power. She thus becomes a better worker, as her activity

will flow from a richer source and a higher point of view, while Martha must, necessarily, be hampered by obstacles and disappointments in life and work.

(*To be continued.*)

THE LIGHTER SIDE OF PEDAGOGY.

The Vernacular.

Composition exercises often evoke laughter. Sometimes they are couched in language which is so vernacular that it puzzles a stranger to divine the meaning it is intended to convey. Here is a case in point. A teacher, having read to his class a short story relating to a girl leaving home for the first time to take a situation as domestic servant, asked the children to write what they could remember of what he had read to them. One child wrote: "Her turned hersel' round a tutlry times and stood gorping at her mother." Of course, by a "tuthry" was meant "two or three," and "gorping" was used for "gaping" or "gazing." This shows one of the difficulties teachers in primary schools have in overcoming faulty English.—The *Schoolmaster.*

He Answered.

His name was Tommy and he came home from school looking so down in the mouth that mother asked him severely what was the matter.

Out of his little trousers pocket he fished a note from the teacher, which said: "Tommy has been a very naughty boy. Please have a serious talk with him."

"What did you do?" asked mother.

"Nothing," sobbed Tommy. "She asked a question, and I was the only one who could answer it."

"H'm," murmured mother. "What was the question?"

"Who put the dead mouse in her desk drawer?" answered Tommy.

Logic.

Even lessons in grammar bring pleasant surprises. I recollect asking some boys to name the parts of speech in a paragraph they had just read. When the word "yesterday" was reached, one little fellow said: "Yesterday, a pronoun, sir." When asked why he had called it a pronoun, he said: Please, sir, it's Tuesday to day, and 'yesterday' stands for 'Monday.'"—The *Schoolmaster.*

A Baffled Inspector.

Meanwhile the War is not destitute of humours. One of its minor unexpected issues was to relieve the children of a Kent school from a threatened inspection. H.M. Inspector proposed to himself a field day among the schools of that district. He got through the morning all right, but his choice for the afternoon fell upon a spot which is now under military occupation, and on his way thither he fell among sentries, who took him for a German spy. When at last he got out of their hands he appeared at the school door infuriated, just in time to see the children going home. — The *University Correspondent.*

English in Central America.

The following letter was received recently by the Editor:—"Dear Sir,—I send to asked kindly what the price for your advertiser's magazine. Please say, if you sell's Jeweler's repairring hand Book. Should in case you do not have none. Would you be so kind to recommend me to The Jeweler's Circular publishing Co. Awaiting your reply and oblige." The signature is a good British name.

The Tables Turned.

The following incident occurred in the Practising School of Hammersmith Training College just twenty-three years ago. The teachers in training had to put in six weeks of practical teaching during their two years' residence in the College. They were a raw set of youths drawn from all parts of the country. The pupils of the Practising School, for the most part, made up in cunning and impudence what they lacked in knowledge and politeness, and the discovery of a weak or indulgent teacher was a glorious find to these precocious cockneys. They found more than their match, however, in a sharp youth, who was born in Manchester, of Italian parents. He was giving an illustration to distinguish between transparent and opaque bodies. He took a glass of water and dropped a shilling inside. Then he asked the boys what they could see. "A shilling, sir," was the reply. He then took a glass of milk, dropped in the shilling, and asked an irresponsible-looking lad what he could see. "A shilling, sir," answered the boy promptly. Some of his classmates tittered. The young teacher was quite unmoved. He again gave the illustration with the glass of water, and obtained the reply he wanted. Our friend possessed, in addition to other accomplishments, some ability as an amateur conjurer. When he came to his second illustration he appeared to drop the shilling in the milk, but in reality he dexterously "palmed" it. "Now what do you see?" he said to the would-be troublesome boy. "A shilling, sir," was the reply. The teacher calmly poured out the milk from the glass, and, producing the shilling he had palmed, said: "There's no shilling there — it's here." The boys never attempted to score off him again.—From a Correspondent.

Greek or German.

A well-known head master, says the *Manchester Guardian*, was making a perfectly innocent journey. In fact it must be admitted that he was travelling to Manchester to hear a famous preacher. On the journey he whiled away the time by correcting Greek exercises. But we live in stirring times. On his arrival in Manchester he was given in custody by a human sleuth-hound on a charge of being a German spy who was making notes in German of all the strategical points on the North-Western Railway. One can only presume that the amateur detective had failed to attain distinction on either the classical or the modern side of any school he may have attended.

Misprints?

During recent weeks the newspapers have been unusually given to misprints, owing no doubt to the hurry in composing the large amount of late news. In some cases the errors may be due to the Correspondent's perturbation that makes him forget his French. Thus we hear of one Correspondent rushing in a fast motor-car through the villages of Ralentir and Au Pas. In another case one of the points mentioned as gained by the Allies was that of D'Appui.

We are getting on. After the following remonstrance, couched in the language of science, we shall not be surprised to hear of parental epistles adorned by classical tags:—"Dear Sir,—I trust my son Thomas sits against a clean boy, as something has been found on his shirt of the species 'Pedncalaris,' which we do not cultivate at home, and as I wish my son to be an ordinary modern scholar and not particularly an entymologist or collector of insects generally, I trust you will see to the matter, and oblige, yours trnly, His Mother."—*London Teacher.*

CORRESPONDENCE.

ELEMENTARY LOGIC.

To the Editor of "The Educational Times."

Dear Sir,—In her long and interesting review (in your November issue) of my "Elementary Logic," the mistress of Girton fails, in certain cases, to see what the criticisms are which a defender of formal logic has to meet. I will choose as three examples the questions (1) as to the extent of the evil influence of formal logic, (2) as to the general aim of logic, and (3) as to the importance of the Law of Contradiction.

As regards (1) the critics of formal logic do not imagine

that the only people who come under its evil influence are those who study it directly. Our point is that the errors embodied in it—"verbalism" and "formalism"—are natural or popular errors which it should be the function of logic to correct rather than to accept and endorse. Nothing is more difficult, we should freely admit, than to estimate in any statistical way the extent of an influence which thus consists in *not* doing something which might be done, and in lending the weight of academic authority to such slackness. It would be just as difficult to estimate, *e.g.*, the evil influence of a slack Church upon religion. Rather than spend time in trying to discover the precise percentage of people affected, why not start from the fact that the influence of formal logic, whatever be its extent, is on the wrong side? Or why not, at any rate, try to dispute that fact?

As regards (2), the critics of formal logic would, of course, agree that "theory follows practice." But how can this be supposed to be relevant? The fact that theory comes later than practice does not seem to me to have any bearing as against the pragmatist contention that theory always arises and develops in the supposed interests of better, as contrasted with worse, practice; so that logical science arises from and develops through experience of actual errors in reasoning. If we *could* not reason wrongly, what possible function would logic serve? Our contention is that "purely speculative" curiosity has only the same sort of existence as "colourless light." The rough, convenient distinction between "colourless" and "coloured" (where the latter term refers only to *particular* colours) or between "purely speculative curiosity" and "practical curiosity" (where the latter term refers only to a *particular* conception of what is practical) should not mislead us into thinking that any light is really colourless, or any theory devoid of practical function. Empty verbiage may, of course, exist, but why allow it the noble name of "theory"? No theory can afford to confess itself out of all relation to practice, since that would amount to a confession that *meaning* is absent from it. Or, at least, why not dispute this?

As regards (3), the pragmatist doctrine is here much less complicated than Miss Jones imagines. The distinction between "so-called" and "real" does not come into it at all (though it does come into our criticism of the Law of Identity), and I have certainly never used the phrase "A is really B" in this connexion. According to our view, the whole source of weakness in the Law of Contradiction, when applied, is *the possible ambiguity of any predicate term as such.* Wherever it is actually the case that S is P in one sense, and not P in another, the Law of Contradiction (applied to the statement "S is P") is misleading, and therefore, before we know whether a given predication is ambiguous or not, the Law of Contradiction cannot be safely applied to it. We always need, that is, some assurance *outside the Law itself* to guarantee our application of it.

That is the whole ground of our contention that the Law of Contradiction cannot be trusted when applied; but we also maintain that any attempts to remedy this defect by making the Law "undeniable" are delusive, because they only amount to saying: "Where ambiguity is absent the defect does not exist"—which is what we begin by admitting, and which does not meet the difficulty of knowing in given cases whether an ambiguity is present or not.

In the light of these explanations it will be seen, I think, that the defences set up by Miss Jones are irrelevant. We may first leave out all her references to "real" and "so-called"; secondly, true though it is that *after* an ambiguity in the predicate B has been discovered, the two statements "A is B" and "A is B" are seen as two, it is not true of the statement "A is B" *before* this wisdom comes to us. Until we know whether it is ambiguous or not, we do not know whether this one "proposition" (form of words) represents one *assertion* or two, and it is precisely in that ignorance that the risk of misapplying the Law arises. And, thirdly, it is true that in all our thinking "repeated applications of the Law are made," but need we thence infer that errors in its application are impossible, or even infrequent? The fact that we habitually eat food does not guarantee us against ever eating what is unwholesome, and still less help should we get from enunciating the axiom that "wholesome food is not unwholesome." When it is said (page 510) that "we do, after all, use and rely on the Law of Contradiction," I should answer that a logic which teaches us to do so indiscriminately is like a doctor who should tell us to eat and drink as much as we like of all that comes to table. It may be an agreeable doctrine—till its results appear—but it can hardly be called systematic medical science.

A real defence of the Law of Contradiction would be made by showing that the risk of ambiguity is so small as to be negligible. Formal logicians do, no doubt, vaguely assume this. But why do they not dispute our reasons for thinking otherwise?—I am, &c. ALFRED SIDGWICK.

PRIZE COMPETITION.

To the Editor of "The Educational Times."

DEAR SIR,—In your remarks last month with respect to the best retort by a teacher to a pupil who has tried to "score off" him you state: "Anything containing a reference to ass or donkey or goose or brains is safer to be left unanswered. They are the time-honoured material of the intellectually bankrupt." I cannot let this pass without calling your attention to one brilliant exception. I believe that Mr. Barkby, the late Vice-Principal of the Borough Road Training College, was the hero. His students heard a donkey bray outside the College, and several made feeble attempts at imitation. The rebuke was as clever as it was cutting: "One at a time, gentlemen!"—Yours faithfully,

B. DUMVILLE.

8 Wallace Road, Canonbury, N.
November 12, 1914.

NATIONAL HOME-READING UNION.

To the Editor of "The Educational Times."

SIR,—In this time of national crisis, and because of it, the National Home-Reading Union appeals to your readers for continued sympathy and support. The Education Minister, in his address to "My colleagues in the national service of education," asks, "What can we do for our country?" and answers, "We can keep the system of education going." The work of the Union is welcomed by the Central and Local Education Authorities as supplementing and reinforcing their own. Its aim is to guide and help those who will be the nation of the future in using their education to advantage, so as to make it a service, for themselves and for others, of enlightenment, of joy, and of true patriotism. War does not merely hamper much work which in time of peace had been pursued for the national welfare; it also tends to bring into all civic and domestic life a spirit of unrest injurious to clear thought and strenuous action. Systematic well-directed reading is a safeguard against this unrest, as against frivolity or apathy. It steadies the mind and forms the character by bringing them into touch with the highest thought and the record of the greatest achievements of mankind.

The monthly magazines hitherto issued by the Union have this year been remodelled and consolidated. The new Home-Reading Magazine addresses itself to all homes and to all classes. It will deal with courses of reading in the fields of Literature, History, Science, Art, and Social and Industrial Life. To the Courses already planned for this winter has now been added one of peculiar interest on "Modern European History from 1870 till to-day and the Causes of the Present War."

All who wish to join the Union as members, or who feel moved to support it, are earnestly requested to write to the Secretary, 12 York Buildings, Adelphi, London, W.C., who will supply any particulars, and will also gratefully receive donations towards carrying on its work.—We are, Sir, yours faithfully,

J. HEREFORD, Chairman of the Council,
J. W. MACKAIL, Chairman of the Executive Committee.

12 York Buildings, Adelphi, W.C.

PRIZE COMPETITION.

PRIZES are offered each month for the best replies to the subject set. Competitors may, if they wish, adopt a *nom de guerre*, but the name and address of winners will be published. Competitions, written on one side of the paper only, should be addressed to the Editor of *The Educational Times*, 6 Claremont Gardens, Surbiton, and should reach him not later than the 15th of the month. As a rule competitions should be quite short, from 100 to 500 words.

The first prize will consist of half a guinea; the second

prize of a year's free subscription to *The Educational Times*. It is within the discretion of the Editor to award more than one first prize, or more than one second prize.

SUBJECT FOR NOVEMBER.

The best suggestion for a subject or subjects of Competition.

The response this month has been very gratifying in quantity and even in quality, though less so in respect of appropriateness. The competitors have rightly enough emphasized the desirability of making the subjects such as will be of practical benefit to the readers, but the suggestions for giving effect to the recommendation have too often a tendency toward dullness. Many of the suggested subjects read just like examination questions. The following might quite reasonably appear in any ordinary examination on education: "Describe your ideal courses of study for a good secondary school." "Discuss the *efficiency value* of English Literature." "The most useful kinds of 'Notes of Lessons' for students in training." What is wanted is rather such problems as, while of a practical character, are at the same time of some special interest of a provocative kind, of some interest that transcends the ordinary level of school routine. One competitor suggests "An essay on our own school days, limited to one school," and elaborates the advantages of the self-criticism that the writing of such an essay would involve. But to do justice to such a subject quite a long composition would be required; nothing short of a page article would suffice. A better type of problem is the presentation of some paradox or epigram to be criticized. One competitor, for example, suggests Mr. Dooley's principle, "I don't care what ye larn thim, so long as 'tis onpleasant to thim. 'Tis thraining they need." Here no doubt we have involved the whole controversy about a "Soft Pedagogy," but the striking form of the statement lends an extra-classroom freshness that takes away the examination feeling. Mr. Bernard Shaw's "My education was interrupted by my schooling" is a still better example, as it admits of much more summary treatment. Such suggestions as "Possible arrangements in elementary schools to make up for the small amount of homework given" are excellent in their way, but have the defect of limiting the competition to one section of our readers.

Often we have considerable difficulty in deciding upon the best answer, but this time there is no doubt that the following is the best set of suggestions sent in. We print the manuscript in full:—

1. Questioning or substantiating the truth of epigrams: *e.g.* "The child is father of the man," "A good memory is rarely the accompaniment of great intellectual power," "A little knowledge is dangerous."
2. The best solution of a practical problem, *e.g.* (*a*) The most effective way of dealing with the "irrepressible" of the class. (*b*) How to arouse enthusiasm in an avowedly dull subject.
3. The best *original* device (mechanical or otherwise) employed in the teaching of any specified subject or part thereof.
4. The best anecdote illustrative of good, bad, or indifferent teachers or teaching.
5. The best essay on (*a*) "Is Compulsory Registration of Teachers desirable? If so, how can it be best effected?" (*b*) "Does the Belgian and French or the English School System produce the best Soldiers?"
6. The best collection of *new* "howlers."
7. The best poem on any educational topic.
8. The best (or the worst) original short essay written by a pupil of a specified age.
9. The best criticism of any article in the current number of *The Educational Times*.
10. The best suggestion of a topic for an article for *The Educational Times*.

A half-guinea prize is awarded to "Kynde Wytte," who will please send his or her name and address to the editor for publication in our next number. A second prize is awarded to Mr. (?) A. Moss, Rose Cottage, St. Michael's-on-Wyre, Garstang, Lancashire.

"Kynde Wytte's" suggestion of a poem on some educational subject is a little daring. Schoolmasters and schoolmistresses are not given to follow the example of the immortal Mr. Silas Wegg and drop into poetry. It is true that D'Arcy Thompson declined into verse, and we are glad to see in one of our educational contemporaries that a modern writer is making anonymous essays towards raising educational subjects above the level of prose. Perhaps he (or she) may be tempted to compete in our columns. It is too risky, however, to stake our all on the notoriously mercurial poetical temperament. Accordingly, we this month have two strings to our bow and give alternative subjects.

SUBJECT FOR DECEMBER.

Either *an original poem on any educational topic*, or *the best original device (mechanical or otherwise) employed in teaching any subject of the school curriculum.*

CURRENT EVENTS.

THE Annual Meetings of the Incorporated Association of Assistant Masters in Secondary Schools will be held on Friday and Saturday, January 1 and 2, 1915, at University College, Gower Street, London, W.C.

LEAVE of absence for as long as might be necessary has been granted to the Vice-Chancellor of the University of London, who has left England to serve as Consulting Physician to His Majesty's Forces at the seat of war. Sir Alfred Pearce Gould, K.C.V.O., M.S., F.R.C.S., has been appointed to act for the Vice-Chancellor during his absence.

AT a joint meeting of the Aberdeen University Liberal and Unionist Associations Mr. Winston Churchill has been unanimously adopted as candidate for the Lord Rectorship. Mr. Churchill has consented.

THE Editor of *Education*, Mr. Ralph Hyams, has volunteered for foreign service, and expects to go to the front from training at an early date. In his absence the editorial work will be carried on by Mr. Francis Hyndman, B.Sc., Barrister-at-Law, with the assistance of Mr. G. Montagu Harris, Secretary of the County Councils Association.

IT is stated that about 40,000 German schoolmasters are with the Army, and that, in consequence, it is impossible to carry on the normal education of children.

MR. PEASE, Minister for Education, in a letter to Mrs. D. A. Thomas, of Llanwern Park, Monmouthshire, expresses his approval of school buildings and playgrounds being given up for the recreation of recruits after drill hours in the winter evenings where other buildings are not available.

"A. C. B." is about to publish a collection of his verses, some of which have appeared in our columns.

THE ROLL OF HONOUR.

So sways in fiercer throe the battle-line,
  Flung from the land that wills to lead the earth:
  On death, on blackest ruin, starving dearth,
Glows the red aureole of her light divine;
Pæans of choric hate the only sign
  Of this her culture's transcendental worth,
  Crying, as never since her hour of birth,
For bloodiest envy, malice, and rapine:
Is it the end of all; or, as we pray
  For God's own guidance to us in our need,
    Healing the grief we have and will not show,
Can we yet hope that each tremendous day,
  Bringing to each its tale of deathless deed,
    May lead us all to pardon and to know?

A. C. B.

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EDUCATIONAL SCIENCE IN AUSTRALIA—AND ELSEWHERE.

By Prof. J. J. FINDLAY.

1. As the Editor of *The Educational Times* has kindly asked me to write some account of the Section L at the recent meeting of the British Association, I do not like to refuse. At the same time I do not write with any pleasure, for the record is not wholly a creditable one, and it is seldom that good is done by finding fault or exposing failure. And yet there seems to be a duty here which someone ought to discharge. The discrepancy between promise and performance was so wide, the disappointment of our Australian teachers so pronounced, as to require explanation or apology from some quarter. Perhaps I am as well qualified as anyone for this task. I can have no personal feeling in the matter, for, so far as my relations with "Section L" are concerned, these have always been happy: when I have been able to attend the meetings I have always been welcomed and a place has been found for any contribution that I have ventured to offer. For several reasons (some of which will be evident from this paper) I have never believed that the Section would render much service to the progress of Education, but until this Australian meeting the failure was not so scandalous as to make the prospect of improvement hopeless.

2. Let us first look at the meeting from the standpoint of Australian teachers. They, in common with the entire community on that continent, were extraordinarily eager in welcoming the British Association, looking forward not only to meeting socially a number of men and women from the Old Country engaged in the same profession, but to interchanging with them expert opinion, on matters which they have studied with devotion and ability at least equal to our own. They read our books and other contributions, and not only ours, but those appearing in America and on the Continent; their leaders have travelled on educational tours in those countries as well as in Great Britain; their educational libraries show them to be conversant with every aspect of educational reform. Some twelve years ago a vigorous advance, which they call "the reform movement," was witnessed, and most of the men now directing public education in the larger States came to the front at that epoch.

When they were invited to take their share in the British Association they responded with characteristic activity. Of course their hospitality was cordial—that was a feature not confined to the teachers; but they did their best to make our pursuit of educational science a success. They first of all ensured an audience by facilitating the attendance, at Section L in Melbourne and Sydney, of a number of Inspectors and other prominent teachers; then they got ready contributions of their own, presenting the results of investigations such as they believed were appropriate to a scientific meeting. The British management found room for some of these, especially for two capital papers on professional training—one from Dr. Smyth, Principal of the Government Training College in Melbourne; the other from Prof. Mackie who holds a similar position in Sydney. Both of these provoked a good discussion and enabled the British visitors to realize the energy and success with which the training problem is being tackled in these States. In one direction it is evident that Australia encounters peculiar difficulties, and is meeting them in a way that should merit careful inquiry from other countries—*i.e.* in the provision of teachers for rural schools. Prof. Mackie gave considerable attention to this theme in his paper, and in Victoria it has been one of the leading problems to which Mr. Tate, the able Director of Public Instruction, has devoted his energies. Thirdly, pains were taken, in the short time at our disposal, to enable us to see something of the schools. Of course, we could only see the schools in the three capitals, Adelaide, Melbourne, and Sydney; but we covered much ground in a few hours. In this direction the outbreak of War upset our plans: some of the mail-boats were commandeered from Whitehall, and that obliged a few of us to leave Australia earlier than had been intended.

This was unfortunate in another way, for in the intervals between the meetings of the Association we were invited to address gatherings of teachers. It can be readily understood that many of the rank and file of teachers could not be present at the sectional meetings, but wished in some way to meet the English teachers and hear what we had to say. We were ready enough to respond to such invitations, not only because by so doing we were able to show our appreciation of our hosts, but because popular gatherings of this kind help one to learn much of the purpose and method of Australian education. It was therefore very disappointing to have to abandon two teachers' meetings of this kind in Sydney and Melbourne in order to catch the steamer.

3. It will be seen that the teaching profession in Australia attached great importance to this event and made ample preparations to ensure a reciprocal benefit.

Where, then, was the disappointment? Well, they anticipated that, with the world-wide prestige of the British Association, a Section devoted to educational science would present to them a view of the investigations, whether in psychology, in administration, or in school teaching, which have of late been occupying the minds of teachers and of the public in Great Britain. Of course, they knew that the journey was long and that they could only expect to welcome a few representatives of such work; but, at any rate, they could anticipate a serious attempt to present educational science in a fashion worthy of the title which the British Association has assumed for this Section, and to hear discussions of the principal themes which they know are the subject of investigation in the Old Country at the present time. In some directions this attempt was made. Prof. Green, for example, secured the presence of a distinguished Russian Professor of Experimental Pedagogy, who brought his apparatus with him and gave us an admirable exposition of his work, and concluded by presenting the apparatus to the University of Sydney. And Dr. Kimmins's record of the trade schools in London was an excellent example of progress in administrative reform—valuable also for the purpose of comparison with conditions in these great Australian cities.* But these, like my own paper, were side dishes. The keynote of the Section was struck, as was intended, by the contributions of the President (Prof. Perry, also Treasurer of the British Association), the two Vice-Presidents (Prof. Armstrong and Dr. Moody), and an ex-President (the Rev. Dr. Gray).

Now each of these four addresses, in varying degrees of violence, were propagandist fulminations, with no pretence at recording any recent results of investigations, either by themselves or anyone else. Of course, Dr. Gray is not vituperative like Prof. Armstrong, and Prof. Perry writes with sparkling wit, although he has to weep for his countrymen; but all four were "out for blood," denouncing the ancient languages, the public schools, *et hoc genus omne*. As Prof. Armstrong announced at the outset: "We come to persuade you" (Vice-President's Address, page 1); and his persuader is a bludgeon. Now I am sure these gentlemen believed that in travelling thousands of miles to preach their gospel they were rendering capital service to the Empire, so it is necessary to tell them quite plainly that they were wasting their time. One Director of Education, a man very cautious in habit and language, spoke of one address as a "travesty of educational science"; another spoke of the whole thing as a "farce." They were not at all grateful. They were familiar with Perry's views as expressed in 1902 and republished after the Glasgow meeting of the British Association. Australian teachers at work on mathematical teaching have followed that reform movement probably much more diligently than the original instigator. They know the Armstrong volume on Heuristics, and understand both sides of the controversy which ranges round the Method of Discovery. And Dr. Gray's book on "Public Schools and the Empire" has also been widely read, especially among the staffs of the secondary boarding schools, which in the four great cities play an important part in the system of education.

What they were led to expect from the pretensions of the British Association was that the British visitors would have something *new* to say. Even if these writers had themselves made no further investigations, one might expect, at any rate, some report of work by others, or some discussion of their theme from a new angle. But no. Prof. Perry told us frankly: "I think that in this address I have put forward no idea that I have not already published time after time in the last thirty-five years" (page 17, Presidential Address). And this actually from the one permanent official who represents the British Association as its Treasurer! We knew already that some scholars and men of science are frauds who dish up their old menu with new garnishing year by year, but this representative of educational science glories in his shame! The Australian people interpreted him somewhat as if he had said: "My dear benighted friends, I shall only tell you from this chair what I have been telling my stupid fellow-countrymen for years past—things I discovered (I and Armstrong) thirty-five years ago. In England they won't believe me, but I expect you haven't yet heard my doctrine, so I will expound it again, and at the same time have another dig at those stupid head masters and clergy and Inspectors who don't do as I tell 'em. By the by, I am presiding over 'Educational Science,' and was a party to adopting the bantling, but, between you and me, there ain't no such thing! Armstrong and I wanted a chance to thunder from our pulpit; so, some twelve years ago, we selected L for a Section and dubbed it 'Science.' But there is no science of education. . . . The subject of Section L, this science, has still to be created" (Presidential Address, page 1). Furthermore, he adds: "If we had the science, the pedagogues would pay no attention to it. . . . The reforms in pedagogy which, with Dr. Armstrong, I have been clamouring for during the last thirty years would cause the best known pedagogues to scrap all their machinery and so lose nearly the whole of their invested capital. Even when they are not influenced by the idea of losing money . . . ." In other words, "If I cannot convince my opponent by fair argument, I can, at any rate, abuse him as a thief."

4. I have said enough to show that there was a wide breach between what the Australian members of Section L expected and what they heard from the principal readers of papers. It must be borne in mind that to listen to rant of this description was not only vexatious in itself, but discouraging to men who are seeking to raise the level of educational discussion in their own country. Every country is afflicted with people, some of them teachers, some not, who delight to attend educational meetings and rail at their opponents.

* A very timely paper, by Sir Harry Reichel, on "Universities," should also be included here.

Australia has its share of this infliction, and the four addresses to which I allude served only to "tickle the ears of the groundlings" and discourage serious workers. It matters not whether the cause is in defence of the classics or the contrary, the vicious features of these propagandists are a direct stimulus to the worst features of partisan oratory. For example, egotism comes to be regarded as a virtue instead of a weakness. Dr. Gray's paper should here be excepted, but the other three hang together. Dr. Moody did not provide us with an abstract, but the two things I remember from his discourse are that he was a pupil of Prof. Armstrong and that he was an assistant master under Walker at St. Paul's. He told us how that vigorous head master disagreed with his methods and interfered with his freedom. If any of the audience knew Walker of St. Paul's, they would understand: I fear that he did not sympathize with our Vice-President, for if Dr. Moody has so little apprehension of the fitness of things as to journey to the Antipodes in order to tell the natives why he left St. Paul's, one can readily understand the impression he made on Dr. Walker.

Prof. Perry and Prof. Armstrong gave us much more autobiography. In his youth, Perry's career was nearly ruined because he either couldn't or wouldn't learn French. He was "a master at one of the great public schools": one itches to know whether his chief treated him as Walker treated Dr. Moody! Prof. Armstrong prints two pages about himself, and adds a delicious item about "one of my sons" who was incapable of ever entering into the spirit of the work." Bravo, young Armstrong! but heads of families will hope that the other three boys were more obedient.

Egotism is merely amusing, the other feature of such propaganda is its disregard of truth. In Armstrong, page 11, we read: "We once had a Science and Art Department . . . now it is all but abandoned." We in England know that the titles and organization of all departments of the central authority for Education have been changed during this century: we also know that the work formerly assigned to a Science and Art Department has not been abandoned, but very greatly extended under other names. Ditto, page 8: "We have not yet taught English in our higher schools, but are beginning to think of doing so." But some Australian teachers have inquired into the work of secondary schools in Great Britain and they know that this is gross misrepresentation. Ditto, page 5: "Our Admiralty, and to a far less extent our War Office, have called Science into their service, but our public departments generally will have none of it." The Agricultural and Economic Sections of the British Association could have contradicted this as far as the Board of Agriculture and the Board of Trade are concerned.

Perry, page 7: "Nineteen out of twenty young officers, if sent to the top of a hill to observe things, cannot write an account of what they see, and they can hardly describe in spoken words what they see, because their vocabulary is too limited"—which explains why the Germans have ridden over Sir John French and his unobservant speechless officers so triumphantly! The trouble with this so-called scientific President is just the opposite; he is prepared both to write and speak with the utmost assurance about things that he has not seen or observed: what a pity he wasn't at Mons instead of Sydney last August! I confess that I feel "vocabulary too limited" to express my anger at a man who libels his country's soldiers while they are at war, on a matter about which he can only speak from hearsay even if he troubled at all to investigate the precise data as to "nineteen out of twenty" on which I presume he relies. It is this sort of unmeasured depreciation of our own people which the Germans have believed to their own undoing. In further depreciation of English military education, a long extract is made from a witness before a Royal Commission; the date, however, is 1902.

Page 2: "I know that the greatest classical scholars only devote themselves to editing some Greek text that has been edited over and over again." This will not be believed in Australia, because there are many students and teachers familiar with the great changes in Classical Study during the last thirty years who will state the facts if they think it worth while.

Let the reader bear in mind that these frothy libels are not spoken on the spur of the moment at a teachers' conference, but solemnly written down "for scientific purposes" in England, printed, carried to Australia and read: they will now be enshrined in the "Transactions" of the "British Association, Australia, 1915," put on the shelves of thousands of public and private libraries for generations to come, and consulted as the sanctioned conclusions of eminent education authorities.

5. A further word of protest must be made against the dumping of this cheap stuff in our Dominions. It is due to our fellow-citizens over the water that they should hear the best of us. Not that we should try to humbug them by concealing the truth; but at any rate we need not exhort them to despise the Old Country. The impression I retain of New Zealand and Australia is of an unbounded affection for "home"—an almost pathetic attachment to kinship with us, combined with a youthful independence of outlook which compels them to be critical of our performances. The psychology of the pioneer as an individual and a community is fascinating: he loves the old folk, and is willing to learn from them, often to copy unwisely their practices, and yet he is exploring new paths and cannot accept the standards or methods which suffice for us who remain at home. Now in these four addresses there was scarcely a good word for English education: the writers seem positively to revel in exposing our "failure," and when, as in the case of Prof. Perry, the style is bright and incisive, the effect upon the auditors, though amusing for the moment, is utterly depressing and inhibitory. It is not just to our kinsmen over the seas, who have so seldom a chance of learning at first hand what goes on in England, to have this grotesque account of English education presented under the important auspices of the British Association. Those who are promoting intellectual progress in these pioneer lands, whether in the Ministries of Education, the Universities, or the schools have a hard enough struggle to maintain; and it is our duty to strengthen their hands. We should either give them of our best or leave them to investigate the facts for themselves. If the British Association had realized the opportunity, it could have presented to Australian teachers a true picture of the energetic efforts (commencing, shall we say, with the Bryce Commission of 1894) to reshape our educational system, efforts which have been still more strenuous, both among administrators and teachers since the era of the Boer War. While the heads of Section L were reading these addresses in Sydney and Melbourne the youth of England, trained in the schools and colleges which these gentlemen despise, have at least learned some of their lessons well. In August last it was not pleasant to hear from the President that his program of reform might need "some great national disaster" before the nation is "converted" to his views. If, in this epoch of tragedy, we can imitate his lightsome vein, we may suggest that, since political England has refused to be frightened into disaster, educational England may refuse to be worried into "reform" by ridicule and abuse. These prophecies are parlous weapons: if England in these days of peril were to go under, the President would cry, "I told you so: now listen to me!" We can wait till the next meeting of the British Association to hear the sequel. Let us hope that Vienna and Berlin will feel more acutely the need of "conversion."

6. This meeting of Section L has brought into clear relief the function which those who founded the Section intended it to discharge. The "science" advocated by these apostles needs stout defenders, and Section L was designed as their gathering ground. The other Sections are concerned with research in the various fields of natural science; in Section L, under the rubric of "Educational Science," the banner may be unfurled and the enemy routed. No doubt compromise and an appearance of impartiality must sometimes be affected. Bishops and head masters, even from the despised public schools, even professors of education, must be admitted from time to time, but "science" must be fought for—"war to the knife" is the Vice-President's cheerful exhortation (page 9). Only by such terrific onslaught can these gentlemen collar "the pecuniary interest in education" which troubles Prof. Perry so acutely. So the British Association, which has secured the deep regard of educated men because it was supposed to be impartially devoted to the search for truth, has set up a pulpit to convert English teachers from the error of their ways, and, incidentally, to cause the funds

to flow more rapidly to the pockets of that selected "scientific fraternity" (pages 5 and 7)—solely of the male sex (page 7)—whose virtues Prof. Armstrong so vehemently proclaims.

I do not see how that difficulty, inherent in the constitution of the British Association, is to be surmounted. Even if Presidents and Vice-Presidents ceased to "rail" (page 17, Presidential Address) and wail, the bias towards propaganda could scarcely be avoided. There is a field of research, in spite of the President, which can be properly labelled "Educational Science," and, thanks to men like Dr. Kimmins and Prof. Green, it has had some scope at sectional meetings; but, if all the meetings were confined to the quiet search for truth, they would be as dull and technical as the other Sections are. Such discussions would not provide sport for the Philistines; nor would they attract the public attention which is secured by smart, popular attack. It must be remembered that the British Association is a huge picnic as well as a scientific meeting; it is solicitous to keep up the attendance and secure new members—whether scientific or lay does not matter to the funds. Further, if the program were cut down on the methods adopted by other Sections and designed by the rules of the Council, it is doubtful if the Section could be carried on. There is a good deal of investigation being conducted in educational science in Great Britain, but this Section is certainly not regarded as a clearing-house where such work can be appraised.

The fact is, education is too complex a study, too extensive a profession, to be handled adequately on British Association methods. Quite apart from the suspicion with which impartial students of education regard the propaganda to which I have referred, it seems unlikely that, at the time of the year when the Association meets, it would be possible to bring together year by year a representative selection of those members of the teaching profession who care for research. Hence there is a good deal to be said for the point of view of those who carry the principal burden of the Section's proceedings—those, that is to say, who are not concerned in the "Dr. Armstrong and I" propaganda, but are identified seriously with the study of education. They make the best of things: (1) so far as they must, they give way to the apostles, since the bias of the British Association makes this unavoidable, and (2) they wedge in as much as they can secure of real educational research, chiefly on the side of so-called experimental pedagogy. Some quite useful work has here been done, especially where medical men have helped—in questions such as eyesight, tests for reading, tests for defective children, and tests for general intelligence; but (3), in order to attract public notice and give importance to the meetings, papers or speeches are invited of a character precisely similar to what is offered elsewhere in popular educational "conferences." The debate on Universities at Birmingham in 1913 affords an example. Now a well-organized conference is a good thing at any time, and, with the thousands of persons interested *inter alia* in public education who attend every British Association meeting, it would be easy to arrange a two days' conference which would secure and deserve a wide measure of regard. True, such a conference would always be liable to suspicion as "rattling the drums" (Armstrong, page 15), which made such an intolerable "clamour" in Australia; but, if the conferences were conducted without any pretence to scientific treatment, they would, perhaps, stand a better chance of impartial handling.

It is, of course, no business of mine to tell the British Association how to manage its affairs, but it is well understood that many members of the Association belonging to other Sections are not over pleased with the repute of Section L. They may be pleased to consider a reform of their own procedure instead of fathering the sledge-hammer procedure adopted by the President and Vice-Presidents this year. If so, I suggest that the treatment of "education" be cut into two portions—the first dealing strictly with educational science and admitting only such contributions as the Committee could accept beforehand as embodying definite results of definite investigations. I understand that this is the regular procedure in other Sections, and it is by keeping to such a standard that the reputation of these Sections has been established and is maintained. If, as Prof. Perry holds (page 1), this standard would only produce "snakes in Iceland," well and good; the Section would go on holiday until something called "Educational Science" were forthcoming. But the second portion would incur no such peril. I suggest that two days, either concurrently with Section L meetings or otherwise, be definitely selected for an Education Conference, managed by a separate Committee of the Council, apart from Section L, and conducted without any of the limitations which are proper to a sectional meeting. As it is, these meetings, which are really conferences, fail to display the character which an important educational conference might assume, and Section L falls between two stools. It should be borne in mind that in every district which the Association honours with a visit there are many hundreds of people, lay and professional, interested in national education. It would be appropriate to provide these with an opportunity such as a conference would afford. Year by year important themes of policy engage public attention, and it would surely not be outside the province of the Council to offer a platform for their discussion.

It is scarcely likely that an outsider like myself will have hit upon a course which will approve itself to those more conversant with the inner policy of the Association. But some remedy seems desirable if Section L is to serve purposes beyond those designed by this year's President and Vice-Presidents, whose proceedings I have criticized with a vigour which faintly copies their own vocabulary and style of argument.

[*Note.*—Professor Perry's and Professor Armstrong's Presidential Addresses can be read in full in recent issues of *Nature.*]

REVIEWS.

Froebel as a Pioneer in Modern Psychology. By E. R. Murray. (3s. 6d. net. Philip & Son.)

Miss Murray is of opinion that Froebel has not had justice done to his psychological work. She believes that he will one day come to his own, and her book is a contribution to bring this about. Her method is by a careful study of Froebel's works in comparison with the works of later psychologists to show that the author of the "Education of Man" has anticipated a great many of the modern views. Her thesis appears to be that those psychologists are in error who bluntly say that Froebel was no psychologist. It is quite probable that Miss Murray and Prof. Münsterberg are fundamentally at one. Everything depends upon the view taken of the nature of psychology. For the sake of her thesis it would have been well for Miss Murray to have cleared up this matter of terminology; but, after all, the value of the book does not lie in the apology for Froebel, but in the exposition of the content of the Froebelian philosophy. No writer stands more in need of explanation than the founder of the Kindergarten. The "Education of Man" is based on a vague idealism, and is so loosely expressed that almost any view of Froebel's underlying meaning may be justified by quotations from it. The fundamental difficulty is the correlation between theory and practice. The usual argument is that on the philosophical side the teacher is represented as a benevolent superintendent whose business is to be "passive, following," while on the practical side the Kindergarten teacher by the use of an elaborate scheme involving complicated apparatus necessarily does interfere with the development of the child. The proper reply to the apparent contradiction is the reconciliation of the two opposing aspects in the higher unity of the idealism on which Froebel bases his work. Miss Murray, however, defends by an attack. She challenges the view that Froebel set forth "passivity" as an essential. She makes capital play with the word *leidend*, which is usually translated "passive," but which she maintains does not bear that interpretation. She quotes a passage in which *leidend* has in brackets after it the explanatory word *passiv*, which she says proves that when used without this explanatory parenthesis *leidend* does not mean "passive." Taken by itself, this sort of argument does not carry much conviction. But Miss Murray does not confine herself to verbal work. It is true that she complains that critics in the past have too frequently based their views upon translations without verifying by comparison with the original text. She herself is scrupulously careful in this matter, and

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the great value of her book is the clear and scholarly presentation of Froebel's views in Froebel's own words.

Great credit is due to Miss Murray's ingenuity in tracing modern views to anticipatory passages in her author. But the same thing can be done in the case of any of the older authors of first rate standing. "The Great Diadactic," for example, could be made to yield quite a handsome crop of quotations that could be tacked on to modern discoveries and views, but few people, we imagine, would be inclined to set up Comenius as a pioneer of Modern Psychology, in any other sense than that he dealt with matter that forms the stuff on which psychology works. Miss Murray is fully alive to the danger of reading into her author what is not there. In fact, she is specially careful to avoid this error, so far as the actual wording goes. But there can be no doubt that Froebel and Comenius meant by certain of their statements something quite different from what these statements would suggest to one who is accustomed to our modern psychological point of view. All the same the book makes out a capital case for an increased respect for Froebel. Miss Murray cannot be said to write as a partisan. She has a chapter on the weak points of her author, and deals faithfully with them. Further, there is a lack of that sentimentality that too often spoils the effect of Froebelian writing. The book is one of the best expositions of the Froebelian position, and will greatly enhance the author's reputation.

The Teaching of Greek at the Perse School, Cambridge. Board of Education Educational Pamphlets, No. 28. (1s. Wyman.)

In August 1910 a Report on the Teaching of Latin at the Perse School, prepared by the Head Master, with the assistance of Mr. W. H. S. Jones and Mr. R. B. Appleton, was published by the Board of Education. The grant of the Board made to carry on this experimental work has since been renewed, and a Report on the Teaching of Greek is now published. This time a large number of exercises worked by pupils is included so that scholars may themselves judge the results achieved. We may say at once that the very high standard reached fully justifies the revolutionary methods described in the report. Most teachers of classics are more or less familiar with the organization and methods adopted at the Perse School. English is taken up at nine or ten, then French; Latin at twelve, Greek or German at fourteen, and specialization for the Universities begins at sixteen. The method is based on the spoken word and the lesson is conducted by means of question and answer. The subject-matter is taken from the things and acts of everyday life, and later the text which is being read is elucidated in Greek. Translation is thus eliminated except (1) as a test of knowledge and (2) as an art to be practised for its own sake. Free composition in Greek is taught by means of paraphrase, the reproduction of stories, and retranslation. The authors of the report find that with this basis the number of pieces of translation into Greek required to attain University Scholarship standard is much diminished. The reproduction of lessons showing the free play of question and answer in Greek is of the utmost interest. Of this work in the higher forms the authors say: "Often a boy will give a summary offhand of the last lesson or of a paragraph just read, or two will discuss the meaning of an argument or an interpretation, quoting freely from their past reading. At this stage the master's pleasure is at its highest." Several pages of such paraphrases of high merit are given; they include the apt comment of a boy on the false concord, Ἀθηναῖοι ἐμπειρόταται —Ἀχαιΐδες οὐκέτ' Ἀχαιοί.

The report, which should be studied by every teacher of Greek, shows how life and interest may be imparted to the teaching of ancient languages. The method, however, has its dangers, and, from the fact that it makes much more insistent demands upon the resources and skill of the teacher than the older methods, its failure, if practised by any who were not fully competent for the task, would be of a more disastrous kind. The authors remark that, in composition and translation into Greek, "the process is from correct vagueness to correct accuracy." We venture to suggest that, with any but

the most skilful teaching, the vagueness would be more apparent than the correctness. It is a method for enthusiasts who are willing to spare no pains for its successful practice. How effective it is in such hands, this report clearly shows. The report will, we think, inspire many to introduce similar work into their own teaching. A word of caution may, therefore, not be out of place. Many teachers make the mistake of attempting the oral method on too large a scale before they are thoroughly familiar with its practice. Disappointment in the results leads to the rejection of the method as impracticable. We suggest that one or two lessons only each week should be set aside for oral work, which may be extended as the teacher acquires greater skill. A change so fundamental must be made gradually, but there is no doubt that the methods followed at the Perse School, introduced with discretion and with such modifications as individual teachers may find necessary, will do much to revivify the teaching of classics.

An Introduction to Experimental Psychology in Relation to Education. By C. W. Valentine. (Clive.)

This little work from the pen of the recently appointed Professor of Education in the Belfast University comes at a very opportune moment. No doubt the little shilling manual on "Experimental Psychology," by Dr. Myers, is excellent, but it lacks just that educational bias that makes the present volume so valuable. Teachers of a progressive turn are rather eager to know what is being done in this experimental way, and now we shall be able to refer them to Prof. Valentine's book with perfect confidence that they will get just what they desire and, still better, what they need. The book is worked on an exceedingly practical plan. A series of experimental exercises are provided under suitable heads in the earlier part of the book, and comments on these experiments, with fuller explanations of the principles underlying them, are supplied in the second part. The experiments are all arranged in such a way that no elaborate apparatus is needed. The materials required are to be found in almost every school. The experiments are to be performed by the student in his own person in most cases, but indications are given of how to apply certain experiments to a class. It will be found in all cases care is taken that the experiment shall interfere as little as possible with the work of the pupils, and that for two reasons —(1) to conserve the interests of the pupils and their parents, but also (2) to secure the best results from the experiment; for, by a beneficent arrangement of the nature of things, it is found that the less the routine of the school is interfered with the more likely is the experiment to give reliable results.

One of the great advantages in a book of this kind is that it is not trammelled by the tradition of predecessors. Prof. Valentine comes to a comparatively fresh field, and is in a position to invent his own mode of procedure. One feels in reading it that one is dealing with a first-hand authority on the subject. No doubt a great deal of the material is familiar to those who have been following the subject, but such readers cannot fail to notice that the exposition of accepted results is exceedingly fresh and clear. This is notably the case in dealing with correlation and with the Binet Tests. But, in addition to the excellent exposition, there is everywhere evidence of the results of the author's own experiments and observation. This is particularly noticeable in the applications to school work. He has been a teacher himself and has, besides, had his proofs read by expert practical teachers; so the schoolman reader can rely upon having an expert criticism of the results of laboratory experiments. For example, in dealing with the results of Binet's experiments on his two daughters, Prof. Valentine has certain comments to make that would never have occurred to the French Professor. The book is well supplied with graphic illustrations, and has an adequate bibliography and index.

Handbook of Practice for Teachers. By Charles A. McMurry (2s. 6d. net. Macmillan.)

Mr. McMurry has given us a book that in a curious way recalls those books on school management on which our older teachers were brought up. But there is a marked difference. The subject matter is the same, and the desire to be intensely practical is common to the old and the new; but in the present volume we have a brevity of statement that was quite unknown of old. Each chapter has the paragraphs numbered and most of them run to only a few lines: indeed several have to content themselves with one line. The first chapter, which is on "Suggestions on Management," reads like an educational "Book of Proverbs." This treatment has a tendency to one of two extremes, platitude and epigram. The expert in the subject dealt with would no doubt prefer the epigrammatic excess, but it is well for the student for whom the book is intended that the opposite tendency is, on the whole, more pronounced. For the critic it is very tiresome to read in Chapter IV: "(8) Laxity of attention in classrooms is a somewhat marked feature of many of our schools; (9) One of the chief difficulties for young teachers, and often for older ones, is that of securing and holding class attention." But this sort of thing seldom occurs, and if an experienced teacher comes across many rather obvious statements he must remember that the book is meant for those who are in the process of learning their business. The book indeed is made up of that great body of truths in education that are acknowledged by all. We are only beginning to realize the fact that there are multitudes of statements on education that nobody now quarrels about, and that are yet of fundamental importance to the beginner. Most of those fundamental statements appear here in their proper relation to one another, and they form a body of doctrine that, if mastered, will make an excellent beginning for the professional life of the teacher.

The book is the condensed result of years of supervision of the work of young teachers carried on under skilful criticism. It deals not only with the general questions of school-management, but of teachers, children, classroom instruction and its criticism. The final chapter deals in a very broad way with the teaching of the various subjects of the curriculum, and within its limits does this very well. But the book is for the teacher who takes up all the subjects of the common school. It is not meant for specialists. Though written for America the book is quite useful for English teachers. We wonder, however, how many readers on this side of the Atlantic will know the exact meaning of the sentence: "Children studying together from the same book usually do more visiting than studying."

Sense Plays and Number Plays. By F. Ashford. (1s. 6d. net. Harrap.)

Here we have the dramatic method applied to the work of young children at school. The author has selected two classes for her purpose, and with the well understood unwillingness of writers to give exact ages, merely tells us that the younger class ranges "from four to six or seven years," and the older "from six to nine years." But this shows that Miss Ashford is not accurate enough in her use of the term "class." The work that she exemplifies in the text may justly be called class-work, but in her Foreword she appears to think that Mme Montessori's aim is "to enable the teacher of a very large class to have at hand employment which the individual child could find for himself." This is not class-work, and Mme Montessori herself does not regard it as such. On the contrary, she believes that she has rung the knell of all class teaching. But, whatever may be the rights of the dispute about the place of class-work, Miss Ashford shows herself mistress of the class spirit. She supplies us with a list of *dramatis personae* for each of her typical classes. The delineation of the characters of each of the eight types that make up each class is quite good in its way, though we felt it a little difficult to identify each of the personalities in the actual plays, and found ourselves continually having to turn back to the descriptive list to find out what manner of person Nelly, or Jenny, or Georgie, or Christopher is certified to be. Indeed in two luckless cases we searched in vain for a character that appears in the text, but is omitted in the descriptive list. Perhaps Miss Ashford will explain that the missing characters are to be found included in that "Chorus of Other Children" to which she refers. But after all, Kitty and Willy are either characters or they are not. If they are only choristers, they should be decently anonymous.

The sort of plays will be gathered from some of the titles: "A Tasting Game," "Touch Plays," "Colour Matching," "The Snake Game." What the author does is to give a record, sometimes in the form of dialogue and sometimes of mere description, of various game-lessons in which the pupils learn in

a very attractive way just the sort of things young children need to learn. At training colleges ingenious but indolent students are sometimes given to the artifice of saying "educe by skilful questions" this or that point—leaving the actual work to the unfortunate person who reads their papers. This book is an excellent example of the opposite of this otiose plan. Everything is worked out in careful detail, and withal in such a bright way that even oldsters can follow the little dramas with interest. Teachers will get both inspiration and instruction from the text and from the illustrations.

The Renaissance of Motherhood. By Ellen Key. (5s. net. Putnam's Sons.)

Ellen Key has won the respect of many important writers and thinkers upon sex and womanhood, including Havelock Ellis. Every one who desires the improvement of women and of their position in the world will be ready to sympathize with her ideas, except in so far as here and there they are extreme. All good women will probably agree with almost all her opinions; yet there is a decided temptation to compare her with a well known English writer of reflections upon life, concerning whom it has been said: "So-and-so says what we all believe, only most of us don't think it necessary to say it." It is really difficult for the prosaic Englishwoman to enjoy a book whose tone is that of the following sentence: "The mother, happy over some noble deed, strokes the hair from her son's brow, to print the kiss of her approval there." Most of us, however much we feel what this implies, don't put it in quite that way. A little more vigour and a little less sentiment would have more driving force with a good many people. Still, the purpose of the book must be respected, and possibly admiration will be more whole-hearted in America than here. The most original and forceful idea presented is that of making a year's training for social service compulsory for women. It has appeared in an earlier work by Mme Key and has been suggested by others also.

The price of the book seems to show that it is intended for people with money to spare. None of Mme Key's books seem to be published cheaply. Perhaps it is against the mistakes and vices of the comfortably off that they are mainly aimed.

OVERSEAS.

The London *Times* ought to be a proud newspaper this month, for the *Educational Review* (New York) has reproduced no fewer than six articles on the War that have appeared in our great daily. The *Review* editor tells us that he makes no apology for giving such prominence to the War, and we Englishmen have certainly no cause of complaint. The more that is known about the War, the better for us, and there can be nothing but advantage for us in having our case plainly stated in a fair magazine. The *Review* is certainly fair, for it begins with a report of the address delivered by Prof. von Harnack at a German-American meeting held in the Berlin City Hall on August 11, 1914. We wonder if American readers will see the inwardness of the introductory paragraph that gives an account of the places of profit and honour held by the well known professor. When we learn that he "holds many important public positions, including those of General Director of the Royal Library of Berlin and President of the Kaiser Wilhelm Association for Research," we cannot help speculating on cause and effect in relation to reactionary political views.

It appears that American newspaper readers "are sick of War news." "I wish," they say, "they'd give us something else." This petulant attitude of seeking an ever-changing source of amusement is bad enough, but is no worse than the complacent attitude implied in the reproach that they fail to appreciate their privileges as "holders of front seats at the spectacle of the ages."

Crowded as the *Review* is with War matter, it still finds room for an article on "The 'Woman Peril' Again." But, whatever may be true in America, we are a little fatigued on this side with fractious disputations on this subject. More attractive is the stimulating title "The Teacher and Herself." But the text does not fulfil the promise of the alluring title. It is evidently written by a she H. G. Wells, who does for the schoolmistress what he has done for the schoolmaster.

(*Continued on page* 546.)

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American women teachers, we are told, are spiritless drudges —dull pedants, who, by minding their business, fall to the humble level of their pupils. "When a woman has taught, say, five years, her brain has been allowed to shrink to the dimensions of her average pupil's." We can fancy this author following Wells still further and demanding as a schoolmistress "an authentic woman." If we cannot get this we can at least encourage our commonplace women teachers to become less commonplace. This, she explains, can be accomplished by cutting all professional reading, and taking up instead all the newest novels—French, Russian, German, Italian—and going to plays "whose very mention shocks the other teachers." The emancipated teacher is never "to take any work home from school," never to mix with other teachers, and, above all, never to attend "lecture courses devised to cultivate the minds of conscientious pedagogues." The teacher is to go out into the world and make some sort of a social stir. In the elegant advice of the article, the teacher is admonished to "be a mixer." The teacher is advised to "cut the classics," to "cut the pedagogic cant," to "cut the sounding phrases about humanity." One wonders how educational magazines like the *Review* itself have escaped the knife of this brilliant hacker of professional literature. But, after all, something must be left in which educational iconoclasts may show their originality. We wonder, however, whether our authoress realizes the full meaning of her statement that "the commonplace soul who tries to be original and bright is sure to end in being a perfect freak." Here, at least, we cannot gainsay her.

The American *Journal of Educational Psychology* is pessimistic about the value to the teacher of an advanced knowledge of the subject-matter he deals with. The editor wants to know "What will an intensive study of the Punic Wars or of the English Restoration profit the high-school history teacher? To what extent will courses in Early English or in the analysis of the Elizabethan drama increase the efficiency of the high-school teacher of English?" He goes on to say that "it is an open question whether these advanced studies are not worse than useless; whether they do not set up standards of attainment and establish habits of work that are positively harmful to the high-school teacher, and that require months, and sometimes years, of painful effort to eradicate?" What do our English teachers say to this—those who maintain that all a teacher needs is a knowledge of his subject and a sense of humour?

In the *School Review* (Chicago) for October we are told that Dr. J. H. Francis, Superintendent of the Los Angeles schools, in an address before the National Education Association, "the greatest educational body in the world," as it is modestly described, at St. Paul, Minnesota, exclaimed, "God bless the girl who refuses to study algebra! It is a study that has caused many a girl to lose her soul." This is violent enough, but the remedy, if pleasant to most girls, is equally violent by its contrast. For algebra we are to substitute courses in costume-designing, for, as Dr. Francis proclaims, "there is more art in one well made garment than in all the art galleries of Europe." This revolt against algebra is interesting from the fact that it has been for some time recognized by the more penetrating of the critics of American curricula that girls have been gradually monopolizing the formal subjects of study, notably algebra and Latin. The violence of the Los Angeles protest must not blind us to the importance of what underlies it.

The current *Pedagogical Seminary* has some excellent articles, particularly one that embodies an exhaustive examination of the whole problem of formal discipline. There is a useful little contribution of "Suggestions toward a Study of Mediocrity." Thirty years or so ago the clergymen throughout Britain seemed to come to a more or less sudden conclusion that in the parable of the talents there had been an undue prominence given to the man of five talents and to the fellow with only one; while the decent, honest person with the two talents received practically no attention at all. As a result, there arose a crop of sermons on "The Average Man"—sermons that certainly were not without their efficacy. Psychologists seem now to have reached a similar crisis. We think, however, that Mr. Feingold does less than justice to the numbers of the mediocre person. Seventy-five per cent. seems a very large proportion of human beings to be set apart as mediocre, but we shall be astonished if further investigation does not increase rather than diminish the percentage that may be fairly described as not out of the common. There is a careful study of the talk of a two and a-half year boy, an elaborate set of Binet-Simon tests, and a brief article on "Factors of Mental Development," by W. H. Winch, of London, England.

GENERAL NOTICES.

EDUCATION.

Principles of Education. By Elizabeth M. Sewell. (1s. net. Longmans.)

This is an abridged and revised edition of a larger work. It has a twenty-two line preface by the Dowager Countess of Chichester, who writes as President of the Mothers' Union. The book hardly justifies its title, a title appropriated by at least five works of some importance. The book has a strong religious bias, and is written in an excellent spirit. Parents and non-professional teachers will find it valuable.

FRENCH.

Differential Partnership. Nos. 1 and 2. By M. MacMunn. (8d. each. Bell.)

These volumes contain about sixty-eight pages each of exercises in French conversation. The plan is for pupils to work in pairs—one has No. 1, the other No. 2. The work is first taken over by the master, then the boys teach one another, while the master wanders about to guide and encourage. English is given in a vocabulary at the head of the lesson and in the margin. It is, in fact, an application of the Direct Method which all will not approve of; *e.g.* these translations: page 28, "it makes warm"; page 42, "I have fear of it"; page 48, "since how much time are you learning?" There are a number of misprints; *e.g.* page 53, "Quel est le Français pour ..."; page 56, "sècher"; page 60, "une conte."

Le Bourgeois Gentilhomme. By Molière. Edited by T. E. Oliver. (2s. Ginn.)

The text occupies 95 pages, the introduction 35, the notes 40, the vocabulary 41. The life of Molière and introduction to the play is a fair piece of work. The notes are hardly satisfactory on points of grammar; *e.g.* page 98, "conjunctive and disjunctive pronouns"; page 118, "que faire"; page 126, "je le quitte"; page 127, "je n'ai que faire." The vocabulary is hardly in place in such a book, but contains some useful information.

GERMAN.

Die Familie Buchholz. By Julius Stinde. Edited by G. H. Clarke. (2s. 6d. Cambridge University Press.)

These pages from Stinde's work make an interesting book, not too long (35 pages). They will teach much about German everyday life, and help pupils to form a good straightforward style. The text of the book is followed by conversation exercises; word-formation is not forgotten; and a good deal of elementary grammar is revised by means of grammatical exercises, although these are not graded in difficulty. We should like to feel that all teachers who use this book will regret the fact that a vocabulary (German-English) is added.

First German Reader. By F. L. Martini. (3s. 6d. Ginn.)

This would be a good book for children who have already learnt German for one year. The prose selections (generally short stories) are varied and refreshingly new; some verses are included in the book, and a few easy songs with their tunes. Each selection has its *Fragen* at the end of the book; the making of grammatical exercises is left to the teacher. There is a vocabulary.

Nathan der Weise. By Lessing. Edited by S. P. Capen. (4s. Ginn.)

The Introduction to this text consists of 95 pages, but we cannot say that it is too long, for it is very interesting and the work is difficult. The notes are full; sometimes there is a little too much help given by translation. Students advanced enough to read "Nathan der Weise" should surely use dictionaries and not rely on a special vocabulary.

Prinz Friedrich von Homburg. By Heinrich von Kleist. Edited by G. M. Baker. (3s. Oxford University Press, American Branch.)

An interesting Introduction precedes the text, and should put the student into the right frame of mind for reading it. Von Kleist's tragedy is more suitable for those who have left school than for younger students, for its plot is really melodramatic in character. For this reason we think it a pity that every act is preceded by a synopsis, which must take away some of the reader's interest in the work itself. Need the vocabulary of such a book include such words as *der Knabe*, *der Kopf*, *kosten*, *kurz*, &c.?

NEW GIFT BOOKS

HERBERT STRANG'S STORY OF THE GREAT WAR.

A HERO OF LIÉGE. The Adventures of an English Airman in Belgium. With Colour Plates by CYRUS CUNEO. Cloth, **3s. 6d**; picture boards, **2s. 6d.**

A FIGHTING STORY OF OTHER DAYS.

A GENTLEMAN-AT-ARMS. A Story of Adventure and Knight-Errantry in the reign of Queen Elizabeth. By HERBERT STRANG. With Colour Plates and Black and White Illustrations. Cloth, **6s.** Special Presentation Edition in parchment binding, **7s. 6d.** net.

By JOSEPH BOWES.
THE NEW CHUMS.
A story of Australian Bush Life. Colour Plates by CYRUS CUNEO. Cloth, **5s.**

A STORY FOR GIRLS.
THE TERRIBLE TOMBOY.
By ANGELA BRAZIL. New Edition. Illustrated in Colour by N. TENISON. Cloth, **3s. 6d.**

NEW ANNUALS FOR YOUNG PEOPLE.

For Boys. **HERBERT STRANG'S ANNUAL.**
A miscellany, containing short stories by the best writers and articles on subjects of special interest to boys of to-day. With Eight Plates in Colour and numerous Black and White Illustrations. Cloth, **5s.** net; picture boards, cloth back, **3s. 6d.** net.

For Girls. **THE VIOLET BOOK FOR GIRLS.**
Edited by Mrs. HERBERT STRANG. Containing complete stories and articles of interest to girls, and extracts in prose and verse. Twelve Colour Plates and other Illustrations. Cloth, bevelled boards, gilt top, **5s.**; cloth, **3s. 6d.**; picture boards, cloth back, **2s. 6d.**

For Children. **MRS. STRANG'S ANNUAL FOR CHILDREN.**
Containing short stories and simple verses by well known children's writers, the whole of the matter being new. Twelve Colour Plates and many Black and White Illustrations. Cloth, **3s. 6d.** net; picture boards, cloth back, **2s. 6d.** net.

For Tiny Folks. **THE TINY FOLK'S ANNUAL.**
Edited by Mrs. HERBERT STRANG. The first issue of an entirely new annual for children of from four to seven years of age. The matter is exceedingly simple, set in large type, and printed on thin boards. Twelve Plates in Colour and Black and White Illustrations on nearly every page. Cloth, **3s.** net; picture boards, cloth back, **2s.** net.

NEW ANIMAL PICTURE BOOKS. By CECIL ALDIN.

JACK AND JILL.
The Adventures of a Cat and a Dog. Twenty-four Colour Plates by CECIL ALDIN. Picture boards, cloth back, **6s.** net.

THE BOB-TAIL PUPPY BOOK.
Twelve Plates in Colour and Black and White Illustrations by CECIL ALDIN. Cloth, **2s. 6d.** net; picture boards, cloth back, **1s. 6d.** net.

HENRY FROWDE AND HODDER & STOUGHTON.

Das Holzknechthaus. By Peter Rosegger. Edited by M. Goebel. (2s. 6d. Oxford University Press, American Branch.)

The somewhat poetic style of this *Waldgeschichte* makes it too difficult for quite elementary classes; children might well read it in their third year of German. As the editor says, the charm of the book lies in the glorification of "the happiness and quiet content of German family life." There are no exercises, but notes and a vocabulary are added to the text. We think one or two of the remarks on religious questions are unnecessary.

Selections from Classical German Literature. By K. H. Collitz. (7s. 6d. Oxford University Press, American Branch.)

The student of German literature will be glad to find in this book specimens (well chosen) of the work of the less famous men. We think that selections from the best known works of the greatest German writers should not have been included. Should not every student read the whole of, *e.g.*, "Nathan der Weise," "Maria Stuart," "Egmont"? The book contains sketches (in English) of the life of each writer, and a satisfactory bibliography. The notes on the selections are sometimes in English, sometimes in German.

HISTORY.

The Pageant of the Birth, Life, and Death of Richard Beauchamp, Earl of Warwick, K.G., 1389-1439. Edited by Viscount Dillon, D.C.L., F.S.A., and W. H. St. John Hope, Litt.D., D.C.L. Photoengraved from the Original Manuscript in the British Museum by Emery Walker, F.S.A. (21s. net. Longmans.)

The Warwick Pageant is a Cottonian MS., and in a series of fifty-three outline drawings portrays the chief events in the career of the father-in-law of the King-maker. The date of the MS. may be placed between 1485 and 1490. It offers a very rich series of authorities for the costume of the period. The drawings are admirably reproduced, practically on the same scale as the original. Each plate is headed by a description of its contents, and on the opposite page this description is given in modern type, with explanatory notes below. We will leave the Editors to discuss with Sir E. Maunde Thompson whether the drawings are the work of a foreign or of a native artist.

PHILOSOPHY.

The Johns Hopkins University Circular, No. 3, of 1914 (Baltimore: The Johns Hopkins Press), is given up to "Three Studies in Current Philosophical Questions" by members of the Philosophical Faculty. Prof. E. H. Griffin reviews the more prominent of the present-day solutions, assuming the standpoint of an intelligent and thoughtful person untrained in the technicalities of the schools—a very sober and suggestive inquiry. Mr. Knight Dunlap, discussing "Images and Ideas," at last breaks away from the conventional theory of imagery, and maintains a working hypothesis "that there is no present content in (or accompanying) thought except muscular activity." This hypothesis makes no attempt to explain *how* physiological activity makes thought or any other form of consciousness possible: "it accepts the fact that thought occurs and the fact that its occurrence is conditioned by physiological activity and is directed simply towards the empirical analysis of this condition." Prof. Lovejoy deals with "The Existence of Ideas" at greater length than both his colleagues together. With an eye to the non-philosophical reader, he enters upon a general methodical review of the more notable objections that have recently been made to "certain venerable entities" in philosophical discussion—"consciousness," the existence of sensations, of images, of ideas, of mental states, of "subjective appearances," of the possibility of "introspection." The "Circular" is very well worth careful consideration.

GEOGRAPHY.

Suggestions for a Course in Climatology in correlation with Geography. By W. E. Whitehouse. (1s. post free. Aberystwyth.)

In connexion with no subject falling within the school curriculum have there been more drastic changes of late years than in the teaching of geography; and probably in none were they more greatly needed. It is now fully recognized that the study of climate in general (and weather as a part of it) is one of the most important sides of modern geography; Mr. Whitehouse's pamphlet is, therefore, a most opportune publication. After speaking of the instruments necessary for the work and their treatment, the writer carefully analyses various publications of the Meteorological Office and other similar organizations in connexion with their use as aids to geography teaching in schools. He then gives a number of suggestions and exercises for a course in climatology. These will be the pages that teachers of geography will find of special use. The pamphlet concludes with a full bibliography, some of the books enumerated being shortly annotated. The work outlined is clearly suited for secondary schools, and even there the master who has charge of the geography teaching will need to use much discretion in his choice of the exercises in climatology, for we fear that to carry out in full the excellent suggestions all the working hours of the school week would scarcely suffice. It seems a pity that the author has thought well to use a few words—"stress," "research," "relate," "orient"—out of their usual sense.

CHRISTMAS BOOKS.

Messrs. Henry Frowde and Hodder & Stoughton send us a parcel of attractive story books of various sorts, sizes, and prices, so that the claims of varied tastes and pockets may be met. A new edition of *The Lost World*, by Sir Arthur Conan Doyle (7s. 6d. net), is a large volume, printed on stout paper, with wide margins, and adorned with many excellent illustrations, some of which are coloured. It will be remembered that the book is an account of the adventures of Professor Challenger, Lord John Roxton, Professor Summerlee, and Mr. E. D. Malone. Conan Doyle's writings are always fascinating. This volume is a handsome one.—Mr. Herbert Strang's stories are always welcomed by young people. *A Gentleman-at-Arms* (6s.) consists of "passages in the life of Sir Christopher Rudd, as related by himself in the year 1641." Sir Christopher is an Elizabethan gentleman who tells his story in the simple and dignified language of the seventeenth century. His adventures at sea among the Spaniards, in France under Henry of Navarre, and with the Dutch, to whom he was sent as an envoy by Lord Burleigh, are in themselves of great interest, and are told with a simple directness that adds to the charm. There are eight plates in colour by Cyrus Cuneo, and many black-and-white drawings by T. H. Robinson. It is a sound book that may be cordially recommended.—*Herbert Strang's Annual* (5s. net) is, like its predecessors, an attractive volume, well printed, on good paper, and with innumerable illustrations, many in colour. The contents include stories by well known writers, such as Captain Charles Gilson and Desmond Coke. Many of these deal with adventures in fights by land and sea; some are stories of school life, and there are articles on scientific subjects. Quite a safe book to buy for young people up to the age of sixteen or so.

The four books that follow are each published at 2s. 6d. Both in bulk and in quality they give excellent value for the money. They are thick quarto volumes, in clear type on good paper, and profusely illustrated. The first three are edited by Herbert Strang. They are *The Brown Book for Boys*, containing adventurous stories by various writers, as well as articles of interesting information. Humour is not omitted, and the airman and the aeroplane are much to the fore. *The Red Book of British Battles* gives the story of fourteen famous battles, taken from the writings of well known historians. Under present conditions a book that deals with the British soldier fighting should have a ready sale. *The Blue Book of Naval Battles* is a companion volume, dealing in the same way with battles by sea. *The Violet Book for Girls* is edited by Mrs. Strang, and is similar in style to "The Brown Book for Boys," *i.e.* it consists of stories told by various writers. The coloured illustrations are especially successful. For girls in the early teens the volume would be a first-rate present.

Mrs. Strang's Annual for Children (2s. 6d. net) will delight the nurseries. There are a great many stories of happy children, happily occupied. The type is large enough for the tiny ones, and the pictures are quite charming. For the same price (2s. 6d. net), there is *The Bob-Tail Puppy Book*, by Cecil Aldin. The pictures of the puppy and his animal friends are very clever, and will appeal to little children. The letterpress, in verse, is as amusing as the pictures.

The Tiny Folks Annual (2s. net) is a volume in which the editor, Mrs. Strang, has endeavoured, as she says, to provide bright and pretty pictures, together with simple pieces in prose and verse which small children can understand and read for themselves. She has carried out her intention admirably.—*A Voyage on a Liner* (1s. 6d. net), by Arthur O. Cooke, gives an account of a voyage taken by the author to the Canary Isles. The book is specially written for boys, with an idea of telling them exactly what life at sea means. There are many illustrations.—A new edition of *Three Little Gardeners*, by L. Agnes Talbot, is included in "The Children's Bookcase" Series at the modest price of 1s. 6d. net.

A new series is announced under the title of "Little Stories of Great Lives." The volumes consist of simple biographies specially written for children, and edited by Herbert Strang. The first two are *The Story of Francis Drake*, by H. Russell Ford, and *The Story of Joan of Arc*, by Evelyn Ward. The price is 1s. net.—*The Story-Book Girls* (1s. net), by Christina Gowans Whyte, is an excellent tale that may be soundly recommended for girls in the schoolroom or who have lately left it.—G. A. Henty's *The Young Franc-Tireurs* is reprinted for 1s. net.—*The Story of the Plants* (1s. net) is one of a series entitled "Wonders of Plant Life," written by F. Martin Duncan and L. T. Duncan.—*Round the World in Seven Days*, by Herbert Strang, is reissued for 7d.

FOLK-LORE STORIES.

Outa Karel's Stories, told in English by Sanni Metelerkamp (Macmillan, 3s. 6d.), are tales of South African folk-lore. Outa Karel is a Bushman, not quite four feet in height, and he entertained the children of his Dutch master in the winter evenings with his legends of the sun and stars and of the wild beasts of the veld. He "was a consummate actor and . . . an old humbug of the first water," but he tells his stories with a power of graphic description that keeps the children spellbound. His views of the cosmogony are at variance with those the children learn from their governess, but the children enjoy the stories as genuine fairy tales. Constance Penstone supplies some telling illustrations.

ROMANCE.

From Messrs. Seeley, Service, & Co. we have a parcel of attractive books which are not exactly history and not exactly science, but which contain history and science written in such a way as to be understood and enjoyed by young readers. *The Romance of Piracy*, by E. Keble Chatterton (5s.), is a new volume in "The Library of Romance." Mr. Chatterton writes the story of the adventures, fights, and deeds of daring of pirates, filibusters, and buccaneers from the earliest times to the present day. There are pirates of all nations, and old favourites, such as Captain Kidd, are not omitted. The volume is well illustrated.—*Stories of Polar Adventure*, by H. W. G. Hyrst (2s. 6d.), is a cheaper issue of the author's larger book "Adventures in the Arctic Regions." Mr. Hyrst tells us of Franklin and Nansen, names long to be remembered, but he also tells us of others, whose names are less well known and who have "made the greater part of the map of the Arctic Continent." He tells us true tales of bravery and of perils gallantly overcome. The book is illustrated, and forms an attractive volume at a low price.—*A Hero of the Afghan Frontier* (2s. 6d.) is the "splendid life-story" of the missionary, Dr. T. L. Pennell, retold for boys and girls by Alice M. Pennell. The volume forms one of the series of "Missionary Biographies," and has many illustrations and a frontispiece in colour.—*The Great Ball on which We Live* (3s. 6d.) is the second volume in the "Science for Children" Series. Mr. Charles R. Gibson describes in simple language, helped by many pictures, the mighty forces of Nature and the wonderful animals which existed before man. The author tells us that various methods are used to keep the reader's attention. "We make imaginary visits to the world before man was created. At one place a jellyfish tells the story of what happened in the sea. At another place a worm tells of its experience underground. And at the close the whole story is summed up in an imaginary kinematograph display."—*Jack Scarlett*, by Major Alan M. Boisragon (5s.), is a story of a cadet at Sandhurst who passes eventful days.—*Judson, the Hero of Burma*, by Jesse Page (2s. 6d.), is the life story of the first missionary to the Burmese. It is specially written for boys and girls.—*The Wonders of Savage Life*, by G. F. Scott Elliot (2s.), deals with the customs of uncivilized races in many parts of the globe.—*Stories of Great Pioneers*, by Edgar Sanderson (2s. 6d.), contains true accounts of brave deeds. Sir Walter Raleigh, Rajah Brooke, Cecil Rhodes, and other notable pioneers are included.—*Ian Hardy, Midshipman* (5s.), will be welcomed by those who read Commander Hamilton Currey's excellent story of "Ian Hardy, Naval Cadet," of which the book before us is a sequel.—*Our Good Slave Electricity* (3s. 6d.) is "an interestingly written description of electricity and the many uses to which it is put, told in simple language" by Charles R. Gibson, who is well known as the writer of scientific books of a character similar to this volume.—*Geology of To-Day* (5s. net) is a popular introduction to the science, told in simple language by J. W. Gregory. There are numerous illustrations.

QUEEN VICTORIA.

The Training of a Sovereign (Murray, 5s. net) is a handsome book, well illustrated, containing an abridged selection from "The Girlhood of Queen Victoria." It is edited by Viscount Esher, and published by the authority of the King.

IN THE DAYS OF NELSON.

The Book of the Blue Sea, by Henry Newbolt (Longmans, 5s. net), has eight coloured plates and thirty-two illustrations in black and white by Norman Wilkinson. Mr. Newbolt's books on our naval history are well known, and this, the latest, will prove welcome to many youthful readers. The author gives us pictures of real naval life in the days of Nelson; pictures of sea service and sea fights, related as fresh personal adventures by the boys who took part in them.

REPRINTS.

Mr. C. B. Wheeler has supplied careful notes to a reissue of *Rob Roy*, by Sir Walter Scott (Clarendon Press, 2s. 6d.). The edition appears with maps, glossary, and the original prefaces and illustrations.—Mr. Humphrey Milford publishes a new edition of *A Wonder-book and the Tanglewood Tales*, by Nathaniel Hawthorne, with coloured illustrations, at 1s. 6d. net.—Messrs. Dent add to their series of "Tales for Children from Many Lands" (each 1s. 6d. net), edited by F. C. Tilney, two new volumes, *Water Babies* and *Robinson Crusoe*. They are prettily produced and charmingly illustrated.

FOR BOYS AND GIRLS.

Many books that are now being issued—books that must have been written before the War broke out—appear to have a direct re-

ference to the present crisis, and will be read with more interest because of it. This is the case with several of the books that are published by Messrs. Blackie & Son. Those that we are about to mention will be found excellent reading for young people between the ages of twelve and eighteen—with one exception, *Blackie's Children's Annual* (picture boards, 3s. 6d.; cloth, 5s.), which is a charming book for the nursery. All the volumes are fully illustrated, either in black and white or in colour. Captain Brereton has written another of his stirring tales of exploits, *On the Fields of Waterloo* (6s.). Just a hundred years ago, and Belgium the battle-ground. The story will prove of great interest.—*A Sturdy Young Canadian*, by Captain Brereton (5s.), appeals to boys who admire grit. Driving an engine in a blizzard is a thrilling experience.—*Gunboat and Gun-runner*, by Fleet-Surgeon T. T. Jeans (6s.), is an exciting story, based on actual occurrences in the Persian Gulf some ten years ago. —Lieut.-Commander Taprell Dorling has written a combination of "The Treasure Island" and "Robinson Crusoe" under the title of *The Boy Castaways* (5s.). Chinese pirates are among the dangers met by the boy heroes.—Heligoland brings us into connexion with the German Fleet, and Mr. Percy F. Westerman will be sure of many readers for his story of that island entitled *The Sea-girt Island* (3s. 6d.). —*Rob Wylie of Jordan's*, by F. Cowley Whitehouse (3s. 6d.), is a story of life in a public school, told with much vigour. The hero makes his way by sheer determination and pluck.—Readers who like the age of chivalry will be drawn to Mr. W. P. Shervill's *Edgar the Ready*, a tale of the reign of Edward III (3s. 6d.). Edgar joins the campaign in France.—Lady Gilbert, better known as Rosa Mulholland, writes the story of a boy and girl who were brought up in the mean streets of a large town, but who, thanks to the help of a friend, both achieved success. The title is *The Daughter in Possession; or, The Story of a Great Temptation* (6s.). It may be safely recommended for young people in their later teens.—*The Girls of St. Cyprian's*, by Angela Brazil (3s. 6d.), is a vigorous story of life in a school that makes special opportunities for the study of music.—For readers who prefer science to fiction we may safely recommend *Treasures of the Earth*, by Cyril Hall (3s. 6d.), dealing with the various minerals found underground, and *The Mastery of the Air*, by William J. Claxton (2s. 6d.), the story of airships and aeroplanes.

BRIGHT PICTURES AND GOOD READING.

A notable feature of the books published by the house of Nelson is the remarkably reasonable price, combined with good paper, printing, and good illustrating. *The Pageant of English Literature*, by Sir Edward Parrott (6s. net), is a splendid volume, beautifully illustrated with over sixty plates, many in colour, reproduced from well known paintings. The author succeeds in giving simple and attractive pictures of great writers.—Mr. W. E. Sparkes, in *New Tales of Old Times* (3s. 6d.), writes of the pioneers of British civilization, such as Columba, Aidan, Chad, and Patrick.—Mr. James Walter Buchan writes a new biography of the Iron Duke, under the title *The Duke of Wellington* (3s. 6d.). There are sixteen illustrations.—An equally handsome volume is *The Story of the "Victory,"* by Geoffrey Callender (3s. 6d.). Nelson's ship had a life of sixty years, and came in for many adventures. The author has collected his material from many sources with care and enthusiasm, and gives a vivid picture of the times when the "Victory" was in commission.—*The Dauntless Three*, by Theodora Wilson-Wilson (3s. 6d.), is a story of boy and girl pranks in the English Lake District. The children are full of spirits and fun. The author has a happy way of relating a narrative.—A story of Vikings is always attractive to boys at the adventurous period of their lives. Such a tale Mr. C. W. Whistler gives us in *Dragon Osmund* (3s. 6d.).—*Nelson's Girl's Annual*, edited by Jean Lang (picture boards, 2s. 6d.; cloth, 3s. 6d.), contains several coloured plates of artistic value, and stories by E. Nesbit, Mabel Quiller-Couch, Arthur Lee Knight, and other writers.—A new series of Nature books, published at 1s. each, will certainly prove helpful to young students. The illustrations are careful, and enable the student to recognize the characteristics of the tree, or the flower, or the bird. The titles are: *Our British Wildflowers*, by Arthur O. Cooke; *Our British Birds*, by George S. Duncan; *Our British Animals*, by Arthur O. Cooke; *Our British Trees*, by Arthur O. Cooke.

Cassell.—*The British Boy's Annual* (5s.) is a handsome volume, with a large number of illustrations in colour and in black and white. There are stories of adventure, articles on topics of interest to boys. A present sure of a welcome from boys round about the age of fourteen.—Many boys are fascinated by railways, and *The Boy's Own Railway Book* (3s. 6d.) is admirable both for its illustrations and its letterpress. The book is edited by Charles S. Bayne.—*The British Girl's Annual* (5s.) is full of good reading, and has many illustrations suitable for girls from twelve to fourteen.—*As Good as the Zoo: A Picture Book for Boys and Girls* (2s. 6d.) is edited by the editor of *Little Folks*. It gives pictures, some in colour, of many animals, with a short description printed in large type suitable for young readers.—*The Girl's Realm* (8s.) is a well known friend, and the bound volume for 1914 makes an excellent present.—*All About Electricity*, by Gordon D. Knox (6s.) is a book that will make an appeal to the science-loving boy (*i.e.* most boys) of fifteen or more. It includes telegraphy of all kinds.—*Heart of the West* (2s. 6d.) is the story of a girl's adventures in Canada, written by Olaf Baker, author of "The Bargees."—*Emancipation*, by Dorothy à Beckett Terrell (3s. 6d.), is the story of a girl who wanted a career. Her life in London while she was seeking it is told with great force. The heroine meets many interesting characters, and is not without adventures. A sound book for girls of fifteen.—Mr. Eric Wood gives us in *Every Boy's Book of Heroes* (3s. 6d.) a number of stories of pluck which are of absorbing interest.—Among the many new books that are written old favourites are not to be forgotten, and a reissue of Miss Yonge's *The Daisy Chain* (1s. 6d. and 2s.) will meet with many purchasers.

MORE WAR BOOKS.

A second parcel from Messrs. Blackie & Son includes a story of the present European War down to the Battle of the Aisne. It is entitled *With French at the Front* (3s. 6d.), and is written by Captain Brereton, whose stories of war have already gained him many friends.—*Modern Weapons of War*, by Cyril Hall (2s. 6d.), tells the modern boy just what he wants to know about guns, torpedoes, mines, and airships.—*The British Army Book* (3s. 6d.) is the "Red Army Book" revised and brought up to date by Colonel Cyril Field. The book is partly historical, giving an account of the doings of famous regiments of the British Army, and also tells of the present organization in the army of to-day.—*The First Mate*, by Harry Collingwood (3s. 6d.), is the story of a strange cruise in a pleasure yacht, which, after many unexpected adventures, reaches a deserted island. —A new edition is issued of *In the Irish Brigade*, by G. A. Henty (3s. 6d.), a writer beloved by boys.

CAPTAIN SCOTT.

Sir J. M. Barrie writes a fascinating account of Scott's boyhood as an introduction to *The Voyages of Captain Scott* (Smith, Elder, 6s. net), retold from "The Voyage of the 'Discovery'" and "Scott's Last Voyage" by Charles Turley. There are many illustrations, adding to the value of a book which will be read with interest by young and old.

PUBLICATIONS RECEIVED.

EDUCATION.

Religious Education in the Public Schools of the State and City of New York: A Historical Study. By Arthur Jackson Hall. Cambridge University Press, 3s. net.

The Education Question (Forty-four Years of), 1870–1914. The Story of the People's Schools Simplified and Explained. By J. Thompson. Sherratt & Hughes, 2s. net.

The Dictionary of Educationists. By the Rev. J. E. Roscoe Fourth edition. Pitman, 5s. net.

School Training of Defective Children. By Henry H. Goddard. World Book Co., 90c.

Mentally Defective Children. By Alfred Binet and Th. Simon. Authorized Translation by W. B. Drummond. Edward Arnold.

Studies in Questions relating to Eye-Training. By William Phillips. Blackie, 1s. 6d. net.

University Life in the Olden Times and Other Essays. By the Rev. J. O. Bevan. Chapman & Hall, 5s. net.

The New Parents' Assistant. By Stephen Paget. Smith, Elder, 3s. 6d. net.

CLASSICS.

The Englishman's Pocket Latin-English and English-Latin Dictionary. By S. C. Woodhouse. Routledge.

A Latin Prose Grammar. By E. L. Churchill and E. V. Slater. Bell, 3s. 6d.

A Short History of Rome for Schools. By E. E. Bryant. Cambridge University Press, 3s. 6d. net.

FRENCH.

Word and Phrase-book for Siepmann's Primary French Course. Part I. Macmillan, 6d.

French Irregular and Defective Verbs: Fully Conjugated. By W. J. Barton. Hirschfeld, 6d. net.

Extraits des Mémoires d'un Ane (Madame de Ségur). Blackie's Little French Classics, 4d.

Bell's Standard French Texts.—(1) Lettres de mon Moulin (Daudet). Edited by Marc Ceppi. 1s. 6d. (2) La Souris Blanche (Moreau). Edited by Marc Ceppi. 1s. (3) Waterloo (Erckmann-Chatrian). Edited by F. Damiens. 2s.

Second Year French Course. By G. A. Roberts and H. J. Chaytor. Clive, 2s.

La Canne de Jonc (Alfred de Vigny). Edited by Thomas Keen. Bell, 1s.
Exercises in French Grammar. Based upon the Author's "Grammaire Française." By E. Renault. Edward Arnold, 1s. 6d.
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MATHEMATICS.

Readers desiring to contribute to the Mathematical columns are asked to observe the following directions very carefully:—

(1) *To write on one side only of the paper.*

(2) *To avoid putting more than one piece of work on a single sheet of paper.*

(3) *To sign each separate piece of work.*

17738. (W. F. BEARD, M.A.)—ABC is a triangle, a parabola touches its sides at X, Y, Z; the tangents parallel to AX, BY, CZ meet BC, CA, AB respectively at P, Q, R. Prove that P, Q, R lie on the polar of the centroid of ABC.

Solutions (I) *by the* PROPOSER; (II) *by* Lieut.-Col. H. W. L. HIME; (III) *by* C. H. HARDINGHAM.

(I) Let the tangent parallel to AX touch at D, and meet CA, AB at L, M.

Let XD meet CA, AB at E, F.

From similar triangles

$$EL/EA = DL/AX.$$

Also, from Menelaus' theorem,

$$CE/EL = CX.PD/PX.DL;$$

therefore

$$CE/EA = CX.PD/PX.AX;$$

but $CX/PX = PL/PD$,

because the tangent PDL meets CX, CA;

therefore $CE/EA = PL/AX$.

Similarly $BF/FA = PM/AX$;

therefore $CE/EA + BF/FA = (PL+PM)/AX = 1$,

by a recent theorem in *The Educational Times;*

therefore XDEF goes through the centroid of ABC by another recent theorem;

therefore the polar of the centroid goes through P, and similarly through Q, R. [Rest in *Reprint*.]

17733. (A. M. NESBITT, M.A.)—ACB is the diameter of a circle APQB of which C is the centre, and O is a fixed point on BA produced. The angle PCQ is constant, and OP, CQ cut in R. Prove that the locus of R is a circular quartic with two real asymptotes.

[It is not possible to publish all the solutions sent in.—ED.]

Solution (I) *by the* PROPOSER; (II) *by* H. R. WALES.

(I) Measuring abscissae to the left we find, for co-ordinates of R,

$$x = a \sin\mu \cos(\theta+\alpha)/\sin(\alpha+\mu),$$
$$y = a \sin\mu \sin(\theta+\alpha)/\sin(\alpha+\mu),$$

when $CP = a$, $QCP = \alpha$, $RPC = \mu$, $PCA = \theta$;

also, if $CO = c$, $c \sin(\mu-\theta) = a \sin\mu$;

further, if $x^2+y^2=\rho^2$, $\rho\cos\theta = x\cos\alpha + y\sin\alpha$,

$$\rho\sin\theta = y\cos\alpha - x\sin\alpha.$$

These yield $[a\sin(\theta+\alpha)-y\cos\alpha]\,c\sin\theta + ay\sin\alpha = cy\sin\alpha\cos\theta$

and $\rho\sin(\theta+\alpha) = y$.

So that

$$c(a-\rho\cos\theta)(y\cos\alpha - x\sin\alpha) = \rho c\sin\alpha\,(x\cos\alpha + y\sin\alpha) - a\rho^2\sin\alpha;$$

i.e., $a\,[\rho^2\sin\alpha + cy(\cos\alpha - x\sin\alpha)]^2 = \rho cy$;

which reduces to the circular quartic

$$(x^2+y^2)[a^2x^2\sin^2\alpha - y^2(c^2-a^2\sin^2\alpha) + 2a^2c\sin\alpha\,(y\cos\alpha - x\sin\alpha)] + a^2c^2(y\cos\alpha - x\sin\alpha)^2 = 0.$$

Both branches touch $y = x\tan\alpha$ at C.

The case in which $c=\infty$ may be of interest, as the curve is the outline of the shadow produced by the sun upon a windmill revolving nearly in the plane containing the sun: each slat throwing a shade upon the one next in precedence. In this case the equation becomes $y^2(x^2+y^2) = a^2(y\cos\alpha - x\sin\alpha)^2$.

The figure of the curve traced (for $c<\infty$) is appended.

If $\quad$ FCO $=\alpha=$ PCQ,

the locus touches FG at O; and if OpC $=\alpha$, so that Op is parallel to Cq, then the asymptotes run from k parallel to Op, and from h making an angle λ on the other side of OC, where Ch = OH, Ck = OK, the angles OLH, OpK being right angles. Moreover, if $l = c\cos\lambda$ (λ being $<p$OC) the asymptotes are

$$l\,(ax\sin\alpha - yl) = ac\sin\alpha\,(l - a\cos\alpha),$$
$$l\,(ax\sin\alpha + yl) = ac\sin\alpha\,(l + a\cos\alpha).$$

The tangents at O, which is a double point, are

$$a\,(k-c)\sin\alpha + (a\cos\alpha \pm c)\,y = 0.$$

[Rest in *Reprint*.]

17727. (Norman Alliston.)—May there be two or more rational sided triangles on a common base and of a common height commensurable with that base?

Solution by W. J. Ashdown.

In the identity $(p-q)^2+4pq = (p+q)^2$ let $4pq = 4x^2y^2$, and let

$$x^2y^2 = ab = cd = ef = gh, \text{ \&c.},$$

and let $\quad (a-b)+(c-d) = (e-f)+(g-h)$, &c. $= r$.

Whenever x, y, a, b, c, &c. are positive integers, two or more different triangles on base r, and with altitude $2xy$, can generally be constructed, complying with the given conditions.

Let $x^2y^2 = 144$. From its factors there can be selected

$$16\times 9 = 72\times 2, \quad 36\times 4 = 48\times 3,$$
$$(16-9)+(72-2) = (36-4)+(48-3) = 77 = r.$$

$2xy = 24$. Then

$$7^2+24^2 = 25^2, \quad 70^2+24^2 = 74^2, \quad 32^2+24^2 = 40^2, \quad 45^2+24^2 = 51^2;$$

and the two triangles are 25, 74, 77 and 40, 51, 77, with common height 24.

Other numerical solutions are $x^2y^2 = 180^2$, giving triangles 408, 507, 549 and 485, 424, 549, with height 360; and $x^2y^2 = 30^2$, with triangles 61, 100, 91 and 60, 109, 91, the height being 60 and one triangle right-angled.

Since x^2y^2 can be taken with as large a number of factors as we please, from which pairs can be selected when the sums of the differences are equal, the number of solutions would appear to be infinite.

Proposer's note to the foregoing Solution:—

To any pair of triangles found as above there appertain two further pairs of the same height $2xy$, and on bases respectively of

$$r-[(a-b)+(e-f)]$$

and $\quad r-[(a-b)+(g-h)]$.

For example, the first Solution given also yields the triangle pair 25, 40, 25 and 74, 51, 25, and the pair 25, 51, 38 and 74, 40, 38, all with height 24.

The following is due to the Proposer:—

Let $n = u^2+v^2$, $p = u+v$, $t = u-v$, $m = u/v$. Then

$$2n = p^2+t^2 \quad\ldots\ldots\ldots\ldots\ldots\ldots \text{(i)};$$

$$m = \frac{4u^2}{4uv} = \frac{2(u^2-v^2+u^2+v^2)}{4uv} = \frac{2(pt+n)}{p^2-t^2} \quad\ldots\ldots \text{(ii)}.$$

Deduct m times (i) from (ii), and $mn-pt = mt^2+n = r$.

Add m times (i) to (ii), and $mn+pt = mp^2-n = q$.

The areas of two triangles can now be arranged as follows:—

1st $\triangle$: $s = q.mn$, $(s-a) = q.pt$, $(s-b) = r.mn$, $(s-c) = r.pt$

2nd $\triangle$: $s = r.mp^2$, $(s-a) = r.n$, $(s-b) = q.mt^2$, $(s-c) = q.n$

areas $= rqmnpt$.

Since $s-(s-a) = (s-b)+(s-c) = a$, the two triangles will have this side $a = rq = (mn)^2-(pt)^2$ in common, and the height $2mnpt$ in common. The sides are

rq, $pt(q+r)$, $qpt+rmn$, in the first triangle,

and rq, $n(q+r)$, $rn+qmt^2$, in the second;

and the first triangle is right-angled, for $pt(q+r) = 2mnpt = p_a$.

Ex. $n = 2^2+1$. The triangles are 91, 60, 109; 91, 100, 61 common height, 60.

17538. (C. E. Youngman, M.A.)—Four points on a parabola lie also on a circle, two of them on the same diameter; then the other two and the centre of the circle determine a circle which touches the parabola.

Solutions (I) *by* R. F. Davis, M.A.; (II) *by* Henry Riddell, M.E.

(I) Let Q, Q′, q, q' be the four points; and V, the middle point of QQ′, the centre of the circle. Draw the diameters VP, vp equidistant from the axis. Let qq' intersect VP in W.

Then, by a well known property,

$qW.Wq' = 4Sp.PW$,

which $\quad = PW.WV$,

since $\quad WV = 2TG = 4Sp$.

Hence q, q', P, V lie on a circle which touches the parabola at P, since the tangent at P and qq' are equally inclined to the axis.

(II) Let the circle pass through the four points P, Q, R, and S, and let PQ be a diameter. Then, if a circle be described passing through R, S, and C (the centre of the given circle), it will touch

the parabola at A, the extremity of the diameter of the parabola through C.

Let AM be the chord of intersection of any circle through R and S; then AM will be parallel to PQ, so that, if A be the extremity of the diameter through C, AM touches the parabola.

Then the centre of the circle through A, R, and S lies on the normal at A, and upon the perpendicular to RS drawn through C, since this perpendicular bisects RS. But these lines make equal angles with the diameter; hence T, their intersection, is equidistant from A and C.

17805. (W. F. Beard, M.A.)—From any point T on a fixed straight line tangents TP, TQ are drawn to a parabola, meeting a fixed tangent at Y, Z. Prove that the locus of the intersection of PZ, QY is a conic.

Solution by the PROPOSER.

Let $y^2 = 4ax$ be the equation of the parabola referred to the fixed tangent and the diameter conjugate to it; let the equation of the fixed line be $hx + \kappa y = a$; and let the co-ordinates of P, Q be

$$(am_1^2,\ 2am_1),\quad (am_2^2,\ 2am_2).$$

Co-ordinates of T are $am_1m_2 = a\mu$ (say) and $a(m_1 + m_2) = a\nu$ (say).

Thus $$h\mu + \kappa\nu = 1 \quad\text{.....(i).}$$

The meet of PZ, QY is easily found to be

$$x = \frac{am_1^2m_2^2}{m_1^2 + m_2^2 - m_1m_2} = \frac{a\mu^2}{\nu^2 - 3\mu},\qquad y = \frac{am_1m_2(m_1+m_2)}{m_1^2+m_2^2-m_1m_2} = \frac{a\mu\nu}{\nu^2-3\mu}.$$

Thus $$\mu/x = \nu/y = \lambda,$$

and therefore $$x(\lambda^2y^2 - 3\lambda x) = a\lambda^2x^2;$$

therefore $$\lambda(y^2 - ax) = 3x;$$

also, from (i), $$\lambda(hx + \kappa y) = 1;$$

therefore locus of x, y is the conic $y^2 - ax = 3x(hx + \kappa y)$, which touches the parabola at (0, 0) and meets it again at the points where the fixed straight line meets it.

17736. (C. E. YOUNGMAN, M.A.)—The tangents to a rectangular hyperbola, at the points where it cuts the nine-point circle of an inscribed triangle, are pedal lines in that triangle.

Solution by PHILIP T. STEPHENSON, B.A.

H is the orthocentre, PSZ the pedal line of O (so that OZ = ZH). AZ and CHM produced meet in T. KT and HA produced meet in V. Join PK.

From the similar triangles HKA, OKW, concurrent lines and a transversal,

$$KM/MA.AV/VH.HZ/ZK = 1,\quad KS/SW.WP/PO.OZ/ZK = 1,$$
$$KM/MA = KS/SW.$$

Again, $$HZ/ZK = OZ/ZK;$$

therefore $$AV/VH = WP/PO;$$

therefore PKTV is a straight line;
therefore, by Pascal, the tangent at Z to the rectangular hyperbola HCBAZ is PZ (the hexagon being HCBAZZ).

17723. (Col. J. H. S. MURRAY, R.E.) — To draw a circle, touching a given line AB in a given point X, which with a given circle may have a common tangent of length l.

Geometrical Solutions (I) *by* C. E. YOUNGMAN, M.A.; (II) *by* W. N. BAILEY; (III) *by* C. M. ROSS, M.A.

(I) Geometrographically:—

On AB take XL = l.	$3C_1 + C_3$
Draw the perpendicular XO.	$2R_1 + R_2 + 2C_1 + 2C_3$
Also the parallel diameter DD′.	$2R_1 + R_2 + 3C_1 + 3C_3$
Then LD gives P.	$2R_1 + R_2$
And the axis of LP gives O.	$2R_1 + R_2 + 2C_1 + 2C_3$
O (OX) is the circle required.	$2C_1 + C_3$
	$8R_1 + 4R_2 + 12C_1 + 9C_3 = 33.$

For LP is equally inclined to the tangents at P and D, and therefore to PT and AB; therefore TP = TL, and T lies on the axis of

LP; therefore TP, like TL, touches (O), and TQ = TX; therefore PQ = XL.

There are only two solutions; whether obtained from L or from L′ they are the same. [Rest in *Reprint*.]

17782. (Professor K. J. SANJÁNA, M.A.)—A chord PQ of a parabola meets the tangent at the vertex in O, and is such that PO is to OQ in a given ratio. Prove that the envelope of PQ is two parabolas. Also find the envelope when for "tangent at the vertex" we read "directrix."

Solution by T. P. TRIVEDI, M.A., LL.B.

Let $$y^2 = 4ax$$

be the parabola, and let the points P, Q be

$$(at_1^2,\ 2at_1),\quad (at_2^2,\ 2at_2).$$

(i) Since OP to OQ is constant, $at_1^2 = \lambda at_2^2$, where λ is constant; therefore

$$t_1 = \pm t_2\sqrt{\lambda}.$$

The equation of the chord PQ is

$$y(t_1 + t_2) - 2x = 2at_1t_2,$$

which may be written

$$\pm 2at_2^2\sqrt{\lambda} - yt_2(1 \pm \sqrt{\lambda}) + 2x = 0.$$

For the envelope we get readily

$$y^2(1 \pm \sqrt{\lambda})^2 \pm 16ax\sqrt{\lambda} = 0,$$

which is two parabolas.

(ii) Here $$TP/TQ = XN/XM,$$

so that $$t_1^2 + 1 = \lambda(t_2^2 + 1).$$

From the equation of the chord, we obtain, on squaring,

$$t_1^2(y - 2at_2)^2 = (2x - yt_2)^2,$$

or $$\{\lambda(t_2^2 + 1) - 1\}(y - 2at_2)^2 - (2x - yt_2)^2 = 0 \quad\text{..... (1).}$$

Differentiating for t_2,

$$\lambda t_2(y - 2at_2)^2 - (y - 2at_2)\{\lambda(1 + t_2^2) - 1\}\,2a + y(2x - yt_2) = 0 \ldots (2).$$

On eliminating t_2 between (1) and (2), we get the required envelope.

QUESTIONS FOR SOLUTION.

ERRATA.—In Question **17869**, *insert* "(" after $\iiint$, and for second ( ) *read* "$(x, y, z, 1)^2$."

17875. (W. N. BAILEY. *Reproposed.*)—Show that the foci of the three parabolas which touch two sides of a triangle at the extremities of the third side lie on the Brocard circle of the triangle, and that the joins of a vertex of the triangle to the focus of the opposite parabola concur at the Symmedian point.

17880. (A. M. NESBITT, M.A. *Suggested by Question* 17737).—KA, KX are tangents to a circle ABX, and a second circle CABK touches KX. The straight line CBD touches the former circle at B and cuts KX in D. Prove that (i) AB is parallel to CK, (ii) that CB = 3BD, (iii) that C is on the second common tangent to the two circles.

17881. (T. MUIR, LL.D.)—If the sum of the squares of the elements of each row of an n-line orthogonant be σ, prove that the co-factor of any k-line minor is equal to the said minor multiplied by $\sigma^{\frac{1}{2}n-k}$. Illustrate by the case of the 8-line orthogonant in which σ is $a^2 + b^2 + \ldots + h^2$.

17882. (Prof. K. J. Sanjána, M.A.)—If

$$\phi(x, y, z) \equiv ax^2 + by^2 + cz^2 + 2fyz + 2gzx + 2hxy = 0,$$

and ϕ_x, ϕ ϕ_z denote $\partial\phi/\partial x$, $\partial\phi/\partial y$, $\partial\phi/\partial z$ respectively, prove that

$$\phi_x \begin{vmatrix} \phi_x & \phi_y & \phi_z \\ h & b & f \\ g & f & c \end{vmatrix} + \phi_y \begin{vmatrix} \phi_y & \phi_z & \phi_x \\ f & c & g \\ h & g & a \end{vmatrix} + \phi_z \begin{vmatrix} \phi_z & \phi_x & \phi \\ g & a & h \\ f & h & b \end{vmatrix} = 16\phi\Delta;$$

and give a geometrical illustration.

17883. ("Solidus.")—Prove that

$$\lim_{n \to \infty} ({}^nP_n \div {}^nQ_n) = e,$$

where ${}^nP_n$ is the number of permutations of n things taken n at a time, and ${}^nQ_n$ is the number of such permutations as have no thing in the same place as it has in one chosen permutation.

17884. (R. Vythynathaswamy.)—Establish the results

$$\sum_1^\infty \frac{n^k}{n!} = \frac{1^k}{0!}\sigma_k + \frac{2^k}{1!}\sigma_{k-1} + \ldots + \frac{(k+1)^k}{k!}\sigma_0,$$

$$\sum_1^\infty (-)^{n-1}\frac{n^k}{n!} = \frac{1^k}{0!}\Sigma_k - \frac{2^k}{1!}\Sigma_{k-1} \ldots (-)^k\frac{(k+1)^k}{k!}\Sigma_0,$$

where

$$\sigma_k = \frac{1}{0!} - \frac{1}{1!} + \frac{1}{2!} \ldots (-)^k\frac{1}{k!},$$

$$\Sigma_k = \frac{1}{0!} + \frac{1}{1!} + \ldots + \frac{1}{k!}.$$

17885. (W. E. H. Berwick.)—If p be a positive prime of the form $3n-1$, prove that the equation

$$u(x, y, z) \equiv x^3 + 29y^3 + 29^2.z^3 - 3.29xyz = p,$$

is soluble in positive integers. Find the smallest solution for $p=2$, $p = 23$, and $p = 239$. Also show that the smallest solution of

$$u(x, y, z) = 1,$$

is $\quad x = 102866541757601689, \quad y = 33481749309704842,$

$$z = 10897883001448120,$$

and explain how to find all the solutions of $u(x, y, z) = p$.

17886. (J. J. Barniville, B.A.)—If a, b are roots of $x^4 + x^3 = 1$, prove that ab is a root of $x^6 + x^4 + x^3 - x^2 - 1 = 0$.

17887. (R. F. Davis, M.A.)—If x, y, z be unequal and

$$\{k(1+yz) - y - z\}/(y-z) = \{k(1+zx) - z - x\}/(z-x)$$
$$= \{k(1+xy) - x - y\}/(x-y) = u;$$

find a relation between u and k.

17888. (C. M. Ross, M.A.)—Solve the equations

$$(x+2y+w)(x+2z+w) = a^2 \quad \ldots\ldots\ldots\ldots(1),$$
$$(y+2z+x)(y+2w+x) = b^2 \quad \ldots\ldots\ldots\ldots(2),$$
$$(z+2w+y)(z+2x+y) = c^2 \quad \ldots\ldots\ldots\ldots(3),$$
$$(w+2x+z)(w+2y+z) = d^2 \quad \ldots\ldots\ldots\ldots(4).$$

17889. (C. E. Youngman, M.A.)—If three normals to a tricusp meet at N, the corresponding tangents cut the curve at six points on a conic; and this, when N is on the tricusp, is a parabola whose axis is perpendicular to the tangent at N. When the conic consists of two lines, those lines meet at a constant angle, and at a constant distance from the centre of the tricusp.

17890. (S. Krishnaswami Aiyangar.)—The locus of the poles of tangents of the minimum described ellipse about a triangle with respect to the maximum inscribed ellipse is the curve

$$(a\alpha)^{-\frac{1}{2}} + (b\beta)^{-\frac{1}{2}} + (c\gamma)^{-\frac{1}{2}} = 0.$$

17891. (W. N. Bailey.)—Through any point P of a conic chords PQ, PR are drawn parallel to a pair of conjugate diameters. Show that the circles through P which touch the conic at Q and R respectively, intersect at a second point on the conic. Deduce the well known theorem:—"If a nodal cubic intersects in the points P and P′, two lines which are harmonically conjugate with respect to the tangents at the node, then the tangents at P, P′ meet on the curve."

17892. (A. M. Nesbitt, M.A. *Suggested by* Question 17756.)—A fixed conic S and a variable conic S′ have two fixed points B, C, in common, and the pole of BC for S′ lies on S, while S′ also passes through a fixed point A. Prove that CD, the other common chord of S and S′, envelopes a fixed conic through B, C, and that AB, AC are tangents to the envelope.

17893. (E. R. Hamilton.)—The tangents AP^∞, BQ^∞ at points A, B on two conics S, S′ respectively, meet at T on a common tangent to S, S′. O, O′ being any two bases in the plane of S, S′, discuss the product of the pencils O[P], O′[Q^∞].

17894. (W. F. Beard, M.A.)—A circle is drawn to touch a parabola at P and to cut it orthogonally at Q. Prove that the locus of the pole of PQ is a cubic.

17895. (R. Goormaghtigh.)—A diameter δ of the circum-circle of a triangle ABC cuts the sides in α, β, γ; the images of α, β, γ through the circum-centre of ABC are α', β', γ', the isogonal conjugates of α', β', γ' are α'', β'', γ''. Prove that $A\alpha''$, $B\beta''$, $C\gamma''$ are parallel, and that the middle points of $A\alpha''$, $B\beta''$, $C\gamma''$ are on a straight line passing through the orthocentre and the orthopole of δ.

17896. (F. G. W. Brown, B.Sc., L.C.P.)—If I_1, I_2, I_3 are the ex-centres of a triangle ABC, show that the circum-centre of the triangle $I_1I_2I_3$ and the circum- and in-centres of the triangle ABC are collinear, having the circum-centre of ABC midway between the other two centres.

17897. (E. G. Hogg, M.A.)—If H be the circum-centre, O the orthocentre, I the in-centre, and I_1 the ex-centre, opposite to the vertex A of the triangle ABC, then, if IH = IO, either A or B or C is 60°, and if $I_1H = I_1O$, either A = 60° or B or C is 120°.

17898. (N. Sankara Aiyar, M.A.)—Construct a triangle given the lengths of its three ex-radii.

17899. (V. V. Satyanarayan.)—Construct a triangle ABC being given the angle A, the side AB, and the distance of the middle point of AC from the Symmedian point.

17900. (W. N. Bailey.)—On any straight line there are two points (real or imaginary) which are isogonal conjugates with respect to a given triangle. Give a geometrical construction to find them when they are real.

17901. (D. Biddle.)—One of the sides of an integral-sided right-angled triangle is given, as to length, and is the geometrical mean between two perfect squares, represented respectively by the sum and the difference of the two remaining sides (including the hypotenuse). Construct such triangle.

17902. (Prof. E. J. Nanson, M.A.)—The vertices of a given tetrahedron lie each on a given sphere. Under what conditions can a point rigidly attached to the tetrahedron describe a fifth sphere?

NOTICE TO CORRESPONDENTS.

It is requested that all Mathematical communications should be addressed to the Mathematical Editor,

Miss Constance I. Marks, B.A., 10 Matheson Road, West Kensington, W.

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Annual General Meeting.—Prof. A. E. H. Love, F.R.S. (Retiring President), and subsequently Prof. Sir Joseph Larmor, M.P., F.R.S. (newly elected President), in the Chair.

Mr. J. P. Clatworthy was elected a member.

The President alluded to the death of Mr. G. S. Carr, who had been a member of the Society for over forty years.

The President then presented the De Morgan Medal to Sir Joseph Larmor, giving a short sketch of his scientific work.

The Council and Officers for the ensuing session were elected; and after Sir Joseph Larmor had taken the Chair, Prof. Love gave his Presidential Address, entitled "Mathematical Research."

The following papers were communicated:—

"Note on an Extension of Sylow's Theorem": Prof. G. A. Miller.

"The Conformal Representation of the various Triangles bounded by the arcs of three Intersecting Circles": Mr. J. Hodgkinson.

"The Dynamical Theory of the Tides in a Zonal Basin": Mr. G. R. Goldsbrough.

"The Modulus of an Analytic Function": Mr. G. H. Hardy.

(i) "On the Modification of a Train of Waves as it advances into Shallow Water"; (ii) "On a Configuration of 21 Points and 21 Lines which arises from the complete Quadrilateral and determines the Group of 168 Plane Collineations": Prof. W. Burnside.

"On Convex Closed Surfaces": Tadahiko Kubota.

"On Integrals and Derivates with regard to a Function": Prof. W. H. Young.

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